

900 Series Service Guide



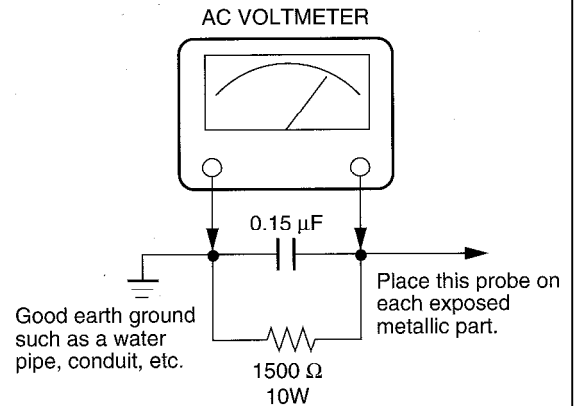
InFocus®
C O R P O R A T I O N

010-0319-00

SAFETY PRECAUTION

WARNING: Service should not be attempted by anyone unfamiliar with the necessary precautions on this projector. The following are the necessary precautions to be observed before servicing this chassis.

1. An isolation Transformer should be connected in the power line between the projector and the AC line before any service is performed on the projector.
2. When replacing a chassis in the cabinet, always be certain that all the protective devices are put back in place, such as; non-metallic control knobs, insulating covers, shields, isolation resistor-capacitor network etc.
3. Before returning the set to the customer, always perform an AC leakage current check on the exposed metallic parts of the cabinet, such as terminals, screwheads, metal overlays, control shafts etc. to be sure the set is safe to operate without danger of electrical shock. Plug the AC line cord directly into a AC outlet (do not use a line isolation transformer during this check). Use an AC voltmeter having 5000ohm per volt or more sensitivity in the following manner: Connect a 1500ohm 10W resistor, paralleled by a 0.15 μ F, AC type capacitor, between a known good earth ground (water pipe, conduit, etc.) and the exposed metallic parts, one at a time. Measure the AC voltage across the combination of 1500ohm resistor and 0.15 μ F capacitor. Reverse the AC plug at the AC outlet and repeat AC voltage measurements for each exposed metallic part. Voltage measured must not exceed 5.25V(rms). This corresponds to 3.5 mA(AC). Any value exceeding this limit constitutes a potential shock hazard and must be corrected immediately.



PRODUCT SAFETY NOTICE

Many electrical and mechanical parts in this chassis have special safety-related characteristics. These characteristics are often passed unnoticed by a visual inspection and the protection afforded by them cannot necessarily be obtained by using replacement components rated for higher voltage, wattage, etc. Replacement parts which have these special safety characteristics are identified in this manual and its supplements; electrical components having such features are identified by the international hazard symbols on the schematic diagram and the parts list.

Before replacing any of these components, read the parts list in this manual carefully. The use of substitute replacement parts which do not have the same safety characteristics as specified in the parts list may create shock, fire or other hazards.

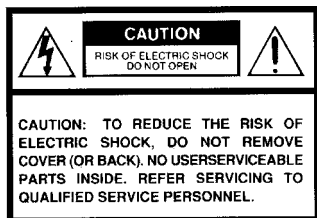
ULTRAVIOLET DANGER IN SERVICE MODE

Eye damage may result from directly viewing the light produced by the lamp used in this product. Always turn off lamp before opening this cover. Ultraviolet radiation eye protection required during servicing.

Table of Contents

Table of Contents	3
Safety Precautions	4
Important Precautions	4
Important Safety Instructions	5
Parts Replacement	7
Adjusting the optional ultra wide angle lens	7
Bottom case	10
ECA stack	13
Elevator assembly	16
Exhaust fan assembly	18
Filter tray	21
Focus and zoom rings	22
Front bezel	24
IR assembly and IR window	26
Keypad assembly	28
Lamp module	29
Projection lens	31
Optical engine	34
Power supply	38
Rear bezel	43
Speakers	45
Top case	47
Software	49
Download the software	49
Install the software on the computer	50
Upgrade the software through the CableWizard 2	51
Functional Tests	58
Troubleshooting	62
Parts Lists	76
FRUs by alphabetic listing	76
FRUs by numeric listing	80
Parts list - Fasteners	84
Standard Accessories	85

SAFETY PRECAUTIONS



The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.



The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

WARNING: TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE. DANGEROUS HIGH VOLTAGES ARE PRESENT INSIDE THE ENCLOSURE. DO NOT OPEN THE CABINET. REFER SERVICING TO QUALIFIED PERSONNEL ONLY.

CAUTION: Laser beam is emitted when the laser button of the remote control is pressed. Do not look from the front of the remote control. Do not face toward a person or to a mirror.

FCC Radio Frequency Interference Statement

Note: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiates radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

WARNING: Changes or modifications made to this equipment, not expressly approved by Toshiba, or parties authorized by Toshiba, could void the user's authority to operate the equipment.

Notice: This Class A digital apparatus complies with Canadian ICES-003.
Cet appareil numérique de la classe A est conforme à la norme NMB-003 du Canada.

IMPORTANT PRECAUTIONS

Save Original Packing Materials

The original shipping carton and packing materials will come in handy if you ever have to ship your LCD projector. For maximum protection, repack the set as it was originally packed at the factory.

Avoid Volatile Liquid

Do not use volatile liquids, such as an insect spray, near the unit. Do not leave rubber or plastic products touching the unit for a long time. They will mar the finish.

Moisture Condensation

Never operate this unit immediately after moving it from a cold location to a warm location. When the unit is exposed to such a change in temperature, moisture may condense on the crucial internal parts. To prevent the unit from possible damage, do not use the unit for at least 2 hours when there is an extreme or sudden change in temperature.

In the spaces provided below, record the Model and Serial No. located at the rear of your LCD projector.

Model No. _____ Serial No. _____

Retain this information for future reference.

IMPORTANT SAFETY INSTRUCTIONS

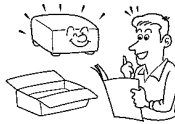
CAUTION: PLEASE READ AND OBSERVE ALL WARNINGS AND INSTRUCTIONS GIVEN IN THIS OWNER'S MANUAL AND THOSE MARKED ON THE UNIT. RETAIN THIS BOOKLET FOR FUTURE REFERENCE.

This set has been designed and manufactured to assure personal safety. Improper use can result in electric shock or fire hazard. The safeguards incorporated in this unit will protect you if you observe the following procedures for installation, use and servicing. This unit is fully transistorized and does not contain any parts that can be repaired by the user.

DO NOT REMOVE THE CABINET COVER, OR YOU MAY BE EXPOSED TO DANGEROUS VOLTAGE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL ONLY.

1. Read Owner's Manual

After unpacking this product, read the owner's manual carefully, and follow all the operating and other instructions.



2. Power Sources

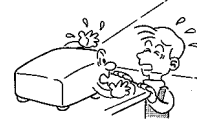
This product should be operated only from the type of power source indicated on the marking label. If you are not sure of the type of power supply to your home, consult your product dealer or local power company.

For products intended to operate from battery power, or other sources, refer to the operating instructions.



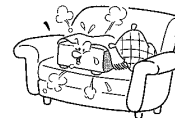
3. Source of Light

Do not look into the lens while the lamp is on. The strong light from the lamp may cause damage to your eyes or sight.



4. Ventilation

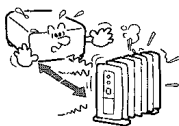
Openings in the cabinet are provided for ventilation and to ensure reliable operation of the product and to protect it from overheating, and these openings must not be blocked or covered. The openings should never be blocked by placing the product on a bed, sofa, rug or other similar surface. This product should not be placed in a built-in installation such as a bookcase or rack unless proper ventilation is provided or the manufacturer's instructions have been adhered to.



IMPORTANT SAFETY INSTRUCTIONS

5. Heat

The product should be situated away from heat sources such as radiators heat registers, stoves, or other products (including amplifiers) that produce heat.



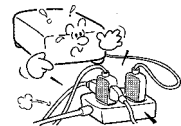
7. Cleaning

Unplug this product from the wall outlet before cleaning. Do not use liquid cleaners or aerosol cleaners. Use a damp cloth for cleaning.



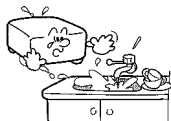
9. Overloading

Do not overload wall outlets; extension cords, or integral convenience receptacles as this can result in a risk of fire or electric shock.



6. Water and Moisture

Do not use this product near water - for example, near a bath tub, wash bowl, kitchen sink, or laundry tub; in a wet basement; or near a swimming pool and the like .



8. Power-Cord Protection

Power-supply cords should be routed so that they are not likely to be walked on or pinched by items placed upon or against them, paying particular attention to cords at plugs, convenience receptacles, and the point where they exit from the product.



10. Lightning

For added protection for this product during storm, or when it is left unattended and unused for long periods of time, unplug it from the wall outlet.

This will prevent damage to the product due to lightning and power-line surges.



IMPORTANT SAFETY INSTRUCTIONS

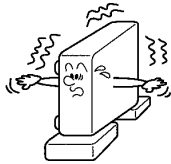
11. Object and Liquid Entry

Never push objects of any kind into this product through openings as they may touch dangerous voltage points or short-out parts that could result in a fire or electric shock. Never spill liquid of any kind on the product.



12. Do not place the product vertically

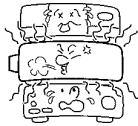
Do not use the product in the upright position to project the pictures at the ceiling, or any other vertical positions. It may fall down and dangerous.



13. Stack Inhibited

Do not stack other equipment on this product or do not place this product on the other equipment.

Top and bottom plates of this product develops heat and may give some undesirable damage to other unit.



14. Attachments

Do not use attachments not recommended by the product manufacturer as they may cause hazards.

15. Accessories

Do not place this product on an unstable cart, stand, tripod, bracket, or table. The product may fall, causing serious injury to a child or adult, and serious damage to the product. Use only with a cart, stand, tripod, bracket, or table recommended by the manufacturer, or sold with the product. Any mounting of the product should follow the manufacturer's instructions and should use a mounting accessory recommended by the manufacturer.

A product and cart combination should be moved with care. Quick stops, excessive force, and uneven surfaces may cause the product and cart combination to overturn.



IMPORTANT SAFETY INSTRUCTIONS

16. Damage Requiring Service

Unplug this product from the wall outlet and refer servicing to qualified service personnel under the following conditions:

- When the power-supply cord or plug is damaged.
- If liquid has been spilled, or objects have fallen into the product.
- If the product has been exposed to rain or water.
- If the product does not operate normally by following the operating instructions. Adjust only those controls that are covered by the operating instructions as an improper adjustment of other controls may result in damage and will often require extensive work by a qualified technician to restore the product to its normal operation.
- If the product has been dropped or damaged in any way.
- When the product exhibits a distinct change in performance - this indicates a need for service.

17. Servicing

Do not attempt to service this product yourself as opening or removing covers may expose you to dangerous voltage or other hazards. Refer all servicing to qualified service personnel.



18. Replacement Parts

When replacement parts are required, be sure the service technician has used replacement parts specified by the manufacturer or have the same characteristics as the original part. Unauthorized substitutions may result in fire, electric shock, or other hazards. (Replacement of the lamp only should be made by users.)

19. Safety Check

Upon completion of any service or repairs to this product, ask the service technician to perform safety checks to determine that the product is in proper operating condition.



Parts Replacement

Adjusting the optional ultra wide angle lens

You adjust the image cast through the ultra-wide angle lens to match a specific rear projection screen size. The ultra-wide angle lens is not compatible with the LP925.

To make this adjustment, the projector must be mounted in the rear projection mechanism. The projector should be plugged into a power source. All other adjustments, including image size and basic focus must be made before adjusting the lens.

NOTE For clarity some pictures show the top case removed. You can reach all the screws with the top case in place. The projector will not operate with the top case removed.

- 1** Remove the front bezel (see page 24).
- 2** Turn the keystone adjustment knob *clockwise* until the lens tilts all the way down.



- 3 Use the 3mm ball head hex wrench (included with the lens) to loosen the two focus ring mounting screws. Do not remove the screws. They only need to be loose enough to adjust the focus ring.



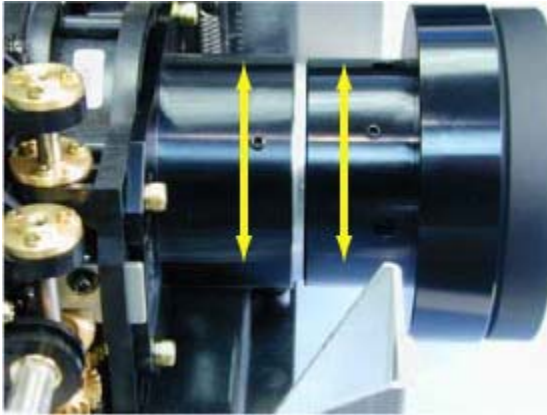
- 4 Use the 3mm ball head hex wrench to loosen the two plane correction ring mounting screws. Do not remove the screws. They only need to be loose enough to adjust the ring.



- 5 Power up the projector.

- 6 Rotate the focus ring and the resolving plane correction ring to adjust the image.

The image should be sharp across the entire screen.



- 7 Tighten the four screws.

Removing and replacing the bottom case

The bottom case (LP920: 505-0675-xx; LP925, LP930: 505-0854-xx) encloses the bottom half of the projector. When you replace the bottom case, you must first remove all the FRUs in the old case, then install them in the new bottom case. You also need to install a certification label (IOpen 920: 020-1011-xx; LP920: 020-1000-xx; LP925: 020-1071-xx; LP930: 020-1068-xx) on the new bottom case.

1 Remove the following items:

Front bezel (see page 24)

Rear bezel (see page 43)

Top case (see page 47)

Exhaust fan assembly (see page 18)

Speakers (see page 45)

ECA stack (see page 13)

Optical engine (see page 34)

Power supply (see page 38)

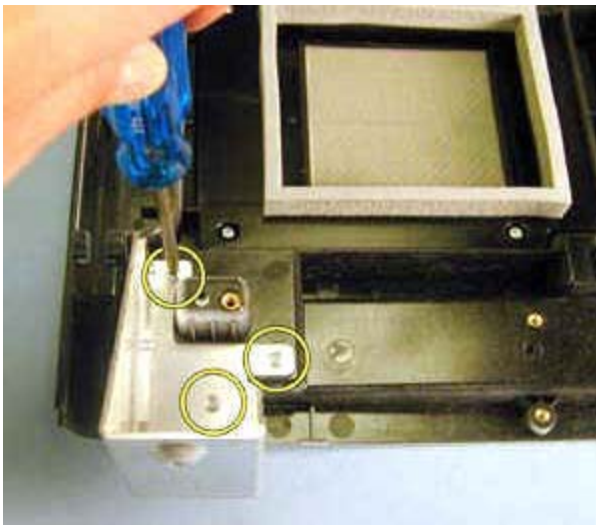
Elevator assembly (see page 16)

2 Use a tweezers or small flat bladed screwdriver to remove the two case retainer slides (340-0660-xx) from each side of the bottom case. Insert the tweezers or screwdriver blade between the slide and the bottom case. Gently pry the center portion of the slide away from the bottom case while pulling the slide toward the front of the projector. Save the case retainer slides. You'll need them for the new bottom case.





- 3 Remove the front bezel bracket from the bottom case. To do this, use a T-10 Torx driver to remove the M3x8 screws that fasten the bracket to the bottom case. Save the bracket. You'll need to install it in the new bottom case.



- 4 Use a hair drier or heat gun to loosen the serial number label (shown below). Don't use too much heat. Then carefully peel it off of the certification label. You will reuse the serial number label when you install the new bottom case.



Assembly Notes

- ◆ Install the front bezel bracket (removed in step 3 above) in the new bottom case.
- ◆ Attach a new certification label to the recessed area on the outside of the bottom case. Then attach the serial number label to the new certification label.
- ◆ In the illustration below, the certification is the larger label. The smaller serial number label is circled.



- ◆ To replace the case retainer slides (removed in step 2 above) in the bottom case, position each slide with the handle toward the front of the projector. Make sure that the latch tabs face upward and that the slots in the slide fit between the front pair of tabs in the bottom case. Then move the slide toward the rear of the projector to lock the slide in place in the bottom case.

Removing and replacing the ECA stack

The ECA stack (LP920, IOpen 920: 526-0068-xx; LP925, LP930: 526-0068-xx) consists of the I/O ECA, controller ECA, I/O shield and I/O bezel. The I/O shield and I/O bezel fasten to the ECA stack with two screws. The I/O ECA attaches directly to the controller ECA with fasteners and a connector. The controller ECA is positioned above the I/O ECA in a stack. The ECAs are not available separately.

The ECA stack attaches to the top sides of the power supply and optical engine.

- 1 Remove the following items:

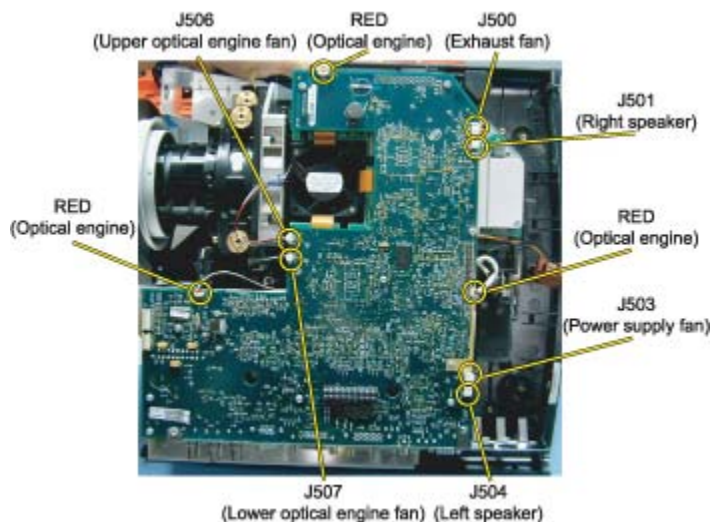
Front bezel (see page 24)

Rear bezel (see page 43)

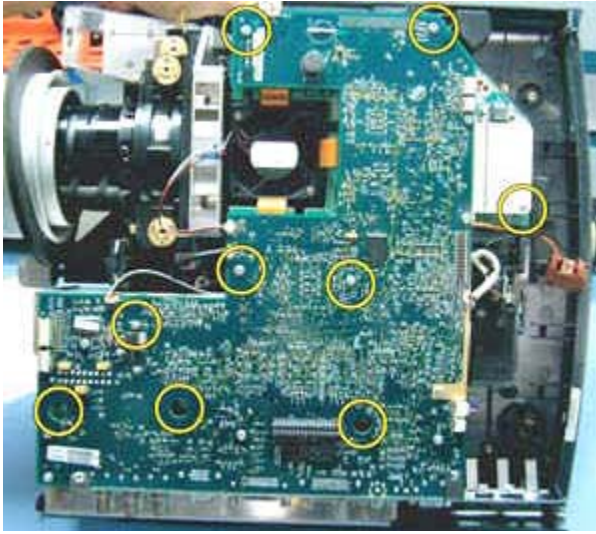
Top case (see page 47)

Exhaust fan assembly (see page 18)

- 2 Unplug the cables from the following connectors on the controller ECA:



- 3 Use a T-10 Torx driver to remove the nine M3x8 Torx screws that attach the ECA stack to the power supply and optical engine.



- 4 Carefully lift the ECA stack upward to disengage connectors on the bottom side of the controller ECA from the optical engine and power supply.

The connectors locations are shown below.



- 5 Lift the ECA stack away from the projector.

Assembly Notes

- ◆ Make certain that the two connectors on the bottom side of the controller ECA align properly with the connectors on the optical engine and power supply. Then press the controller down to engage the connectors.
- ◆ Fasten the ECA stack to the optical engine and power supply with the M3x8 screws. Tighten the screws to 4 in.-lbs. (.452 Nm)
- ◆ Make certain that all nine cables are reconnected to the controller ECA.
- ◆ After reassembling the projector, make certain that you upgrade the projector software (see page 52).

Removing and replacing the elevator assembly

The elevator assembly (505-0647-xx) is comprised of four pieces: a housing, the elevator shaft and two springs, the elevator actuator, and the elevator button. The rubber foot (505-0649-xx) at the bottom of the elevator shaft supports the front of the projector in desktop applications. The elevator button presses onto the end of the spring-loaded actuator and extends through the front bezel. It is not necessary to remove the elevator from the projector to replace the rubber foot.

The elevator fastens to the inside of the bottom case.

- 1 Fully extend the elevator to unload the spring tension from the elevator shaft.
- 2 Remove the bottom case (see page 10).
- 3 With the bottom case upside-down on the bench, use a #1 Phillips screwdriver driver to remove the black M3x5 screw from the rubber foot at the end of the elevator shaft.



- 4 Use a T-10 Torx driver to remove the four M3x8 Torx screws from the elevator housing on the inside of the bottom case.



- 5 Lift the elevator assembly out of the bottom case.

Assembly Notes

- ◆ Position the elevator so that the actuator faces the front of the projector before you insert the end of the elevator shaft through the hole in the bottom case.
- ◆ Fasten the elevator to the bottom case with the M3x8 screws. Tighten the screws to 4 in.-lbs. (.452 Nm).
- ◆ Make sure to replace the elevator button at the end of the actuator before you reassemble the projector.
- ◆ After you've replaced the elevator, replace the rubber foot. Then fully retract the elevator to prevent damage to the elevator shaft.

Removing and replacing the exhaust fan assembly

The exhaust fan assembly (LP920, IOpen 920: 505-0679-00; LP925, LP930: 505-0679-01) consists of the exhaust fan and exhaust fan bracket in which the fan mounts. The assembly is located at the rear of the projector inside of the rear bezel. It is held in place between the bottom and top cases without fasteners. The fan exhausts hot air generated by the lamp module.

- 1 Remove the following items:

Front bezel (see page 24)

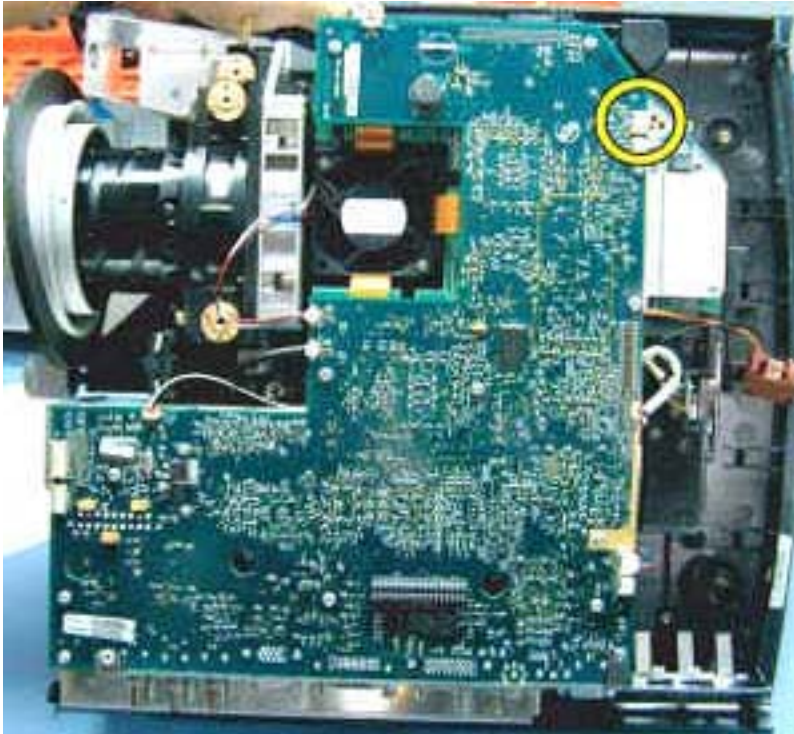
Rear bezel (see page 43)

Top case (see page 47)

- 2 Use a T-10 Torx driver to remove the two M3x8 Torx screws from the option card baffle and lift it away from the projector. Save the option card baffle. You'll need to replace it after you replace the exhaust fan assembly.



- 3 Unplug the exhaust fan cable from the controller ECA at connector J500.



- 4 Lift the tab that holds the interlock switch in position on the exhaust fan bracket and slide the interlock switch out of the recess on the bracket.



- 5 Lift the exhaust fan assembly from the bottom case.



Assembly Notes

- ◆ Position the exhaust fan assembly so that it rests in the guide slots in the bottom case.
- ◆ Slide the interlock switch into the recess in the exhaust fan bracket. The tab on the bracket snaps over the switch to hold it in position.
- ◆ Connect the exhaust fan cable to the controller ECA at J500.
- ◆ Replace the option card baffle making sure that the tab at the rear of the baffle properly engages the slot at the top center of the exhaust fan assembly.

Removing and replacing the filter tray

The filter tray (505-0819-xx) is located on the underside of the bottom case. The tray contains a fine mesh filter that cleans the air as it is drawn into the projector by the fan on the bottom of the optical engine. The tray fits into a cavity on the left side of the bottom case and fastens with two screws.

- 1 Loosen the two black M3x5 Phillips screws at the sides of the filter tray handle.

NOTE It is not necessary to remove the screws. They are held in place in the filter tray handle.

- 2 Grasp the filter tray handle and slide the filter tray out from the cavity in the bottom case.



Assembly Notes

- ◆ Before installing the filter tray, make sure the mesh screen is clear of dust and lint. If needed, spray compressed air through the top of the filter to blow off the debris.
- ◆ The filter tray fits into the cavity in the bottom case only one way. Make sure the recess in the filter tray handle faces downward as you insert the filter tray into the bottom case.
- ◆ Fasten the filter tray to the bottom case with the two screws. Tighten the screws to 4 in.-lbs. (.452 Nm)

Removing and replacing the focus and zoom rings

The focus ring (LP920, IOpen 920: 505-0751-xx; LP925, LP930: 505-0752-xx) fits around the front of the projection lens. The zoom ring (LP920, IOpen 920: 505-0752-xx; LP925, LP930: 505-0786-xx) fits inside the focus ring. The lens cap (340-0445-xx) fits over the focus ring.

Each ring secures to the lens with three M2x5 plastite Phillips screws. A foam ring fits over the zoom ring to prevent light leakage around the lens.

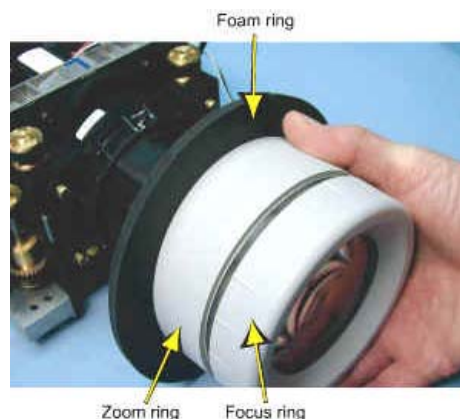
- 1 Remove the following items:

Front bezel (see page 24)

Rear bezel (see page 43)

Top case (see page 47)

- 2 Slide the foam ring off of the back of the zoom ring. This gives you access to the screws that fasten the ring to the lens barrel.



- 3 Remove the three Phillips screws that fasten the zoom ring to the lens barrel, then slide the zoom ring rearward, away from the focus ring.

NOTE You can access only two of screws from the top side of lens. Remove the other screw from bottom side of the lens.



- 4 Remove the three Phillips screws that fasten the focus ring to the lens barrel, then pull it off the front of the lens.

NOTE You can access only two of screws from the top side of lens. Remove the other screw from bottom side of the lens.



- 5 Once the focus ring is off the lens barrel, remove the zoom ring.

Assembly Notes

- ◆ Hand tighten the screws on both rings to 2 in-lbs (.226 Nm)
- ◆ Slide the zoom ring on the lens barrel first. Then slide the focus ring on and align the screw holes in the focus ring with the holes in the lens barrel flange.
- ◆ After you fasten the focus ring to the lens barrel, rotate the ring counterclockwise as far as it will go.
- ◆ This allows you to slide the zoom ring up far enough to see the screw holes in the lens barrel. Note the location of the holes, then slide the zoom ring forward, and attach the screws.
- ◆ Slide the foam ring back over the lip on the back of the zoom ring.

Removing and replacing the front bezel

The front bezel (LP920, IOpen 920: 505-0750-xx; LP925, LP930: 505-0852-xx) covers the front of the projector. It fastens to the metal chassis inside the projector with three screws.

The front bezel vent (505-0680-xx) fastens to the outside of the front bezel with three snap fasteners. You remove the front bezel vent to access the front bezel screws.

- 1 Gently pry the front bezel vent to unsnap it from the front bezel.



- 2 Use a T-10 Torx driver to remove the three M3x8 Torx screws that fasten the front bezel to the projector.



- 3 Pull the front bezel forward to separate it from the projector.



Assembly Note

- ◆ Make sure that the front bezel fits over the lip on the front of the top and bottom cases. The elevator button extends through the hole at the bottom center of the front bezel. Tighten the three M3x8 screws to 4 in.-lbs. (.452 Nm). Place the front bezel vent against the front bezel and press to engage the three snap fasteners.

Removing and replacing the IR assembly and IR window

The IR assembly (540-1478-xx) fastens to the inside of the top case in the projector, beneath the IR window (340-0657-xx). The IR cable, part of the IR assembly, connects the IR receiver with the controller ECA.

- 1 Remove the following items:

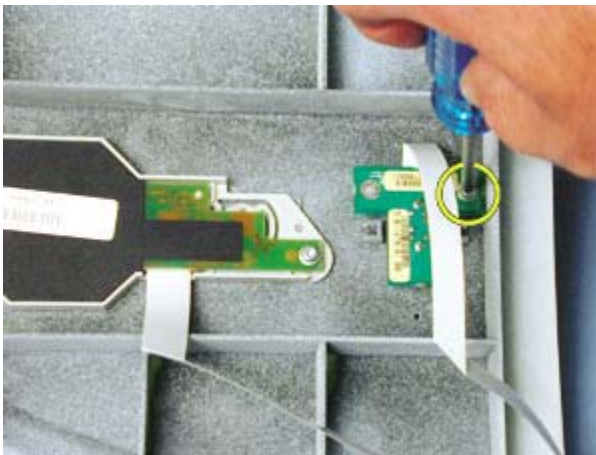
Front bezel (see page 24)

Rear bezel (see page 43)

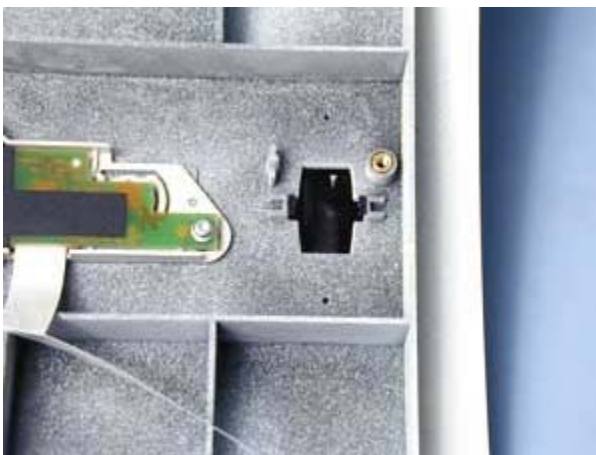
Top case (see page 47)

- 2 With the top case upside-down on the bench, remove the M3x8 Torx screw that secures the IR assembly in the top case.

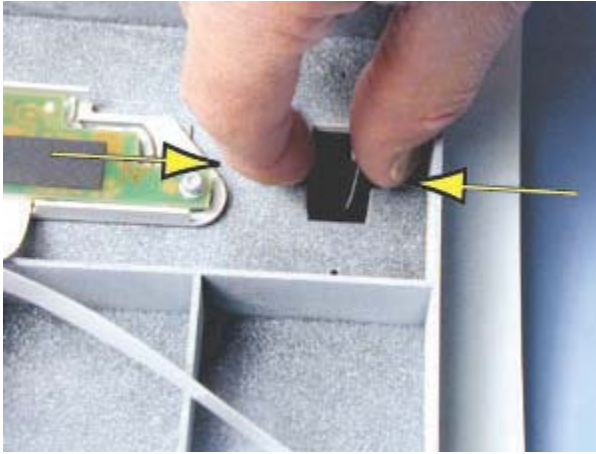
Note Avoid scratching the I/R receiver dome. Lay the top case on a soft surface.



- 3 Lift the IR assembly up and away from the top case.

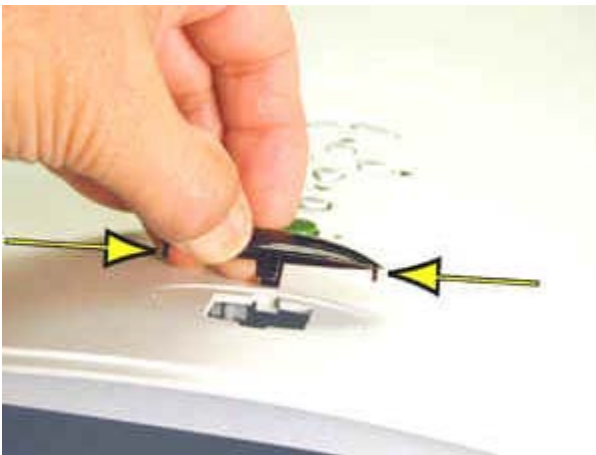


- 4 Remove the IR window by squeezing the two black snap tabs on the inside of the window, then pressing the window through its hole in the top case.



Assembly Notes

- ◆ Align the guide tabs on the IR window with the slots in the top case, then press the window into place.



- ◆ Align the hole in the IR assembly with the stud in the top case.
- ◆ Fasten the IR assembly to the top case with the M3x8 screw through the opposite hole. Tighten the screw to 4 in.-lbs. (.452 Nm).

Removing and replacing the keypad assembly

The keypad assembly (526-0045-xx) fastens to the inside of the top case. The keypad cable, part of the keypad assembly, connects the keypad with the controller ECA.

- 1 Remove the following items:

Front bezel (see page 24)

Rear bezel (see page 43)

Top case (see page 47)

- 2 With the top case upside-down on the bench, remove the two M3x8 Torx screws that secure the keypad assembly in the top case.

NOTE Avoid scratching the I/R receiver dome while the top case is on the bench. Lay the top case on a soft surface.



- 3 Lift the keypad assembly up and away from the top case.

Assembly Notes

- ◆ Align the keys on the keypad assembly with the holes in the top case.
- ◆ Fasten the keypad assembly to the top case with the two M3x8 screws. Tighten the screws to 4 in.-lbs. (.452 Nm)

Removing and replacing the lamp module

The lamp module (LP920, IOpen 920: SP-LAMP-IO9; LP925, LP930: SP-LAMP-LP9) provides a spectrum-balanced, concentrated, and carefully focused light beam for the optical engine. It is located at the rear of the projector inside the lamp housing which is a part of the optical engine. The lamp module fastens to the lamp house with three captive screws. Replacing the lamp module with a new one automatically resets the lamp hour counter in the projector.

WARNING Allow the projector to cool before removing the lamp module. The lamp module becomes very hot when the projector is in use. Operating temperatures inside the lamp housing are high enough to cause burns. Avoid touching any portion of the lamp module that is located in the light path. Oils from your fingers can cause smudges and uneven heating of lamp surfaces, resulting in decreased image quality and premature lamp failure. If the lamp is ruptured or the lamp module is cracked or damaged, be careful of quartz or glass fragments that could cause personal injury.

- 1 Remove the rear bezel (see page 43).
- 2 Use a #2 Phillips driver to loosen the three captive screws that fasten the lamp module to the lamp housing. You don't need to remove the screws.



- 3 Grasp the handle on the lamp module and pull the module out of the lamp housing.



Assembly Note

- ◆ When installing the lamp module, align the lamp connector on the module with its mate inside the projector. Then press the module into place until the lamp connector seats. Be sure to tighten the three captive screws before replacing the rear bezel.

Removing and replacing the projection lens

The projector uses one of four projection lenses: the standard zoom lens (LP920, IOpen920: 306-0049-xx; LP925, LP930: 306-0050-xx), an optional ultra-wide angle lens (HW-LENS-LR01), an optional wide angle lens (HW-LENS-LW01), or an optional long throw lens (HW-LENS-LL02). Follow these instructions to remove and replace the standard projection lens. You remove and install all four lenses the same way. The ultra-wide angle lens is not compatible with the LP925.

In all 900 Series projectors except the LP925, the projection lens fastens to an adjustable cradle forward of the optical engine. The cradle adjusts the lens up or down when the lens shift knob is turned. The LP925 does not include the lens shift adjustment. You can remove and replace the projection lens without removing the optical engine. The standard zoom lens is also included with a new optical engine. It requires a lens cap (340-0445-xx)

- 1 Remove the following items:

Front bezel (see page 24)

Rear bezel (see page 43)

Top case (see page 47)

- 2 Remove the foam lens gasket (329-0220-xx) from the projection lens by sliding the gasket forward and off of the front of the lens.

NOTE Place the gasket aside. You'll need it when you replace the standard lens. You won't need the gasket if you install an optional lens, as the optional lenses include a new gasket.

- 3 Use a 3mm ball head hex wrench to remove the four screws and washers that fasten the lens to the adjustment cradle. Be sure you leave the lens cap in place while you remove and replace the lens.



- 4 Gently slide the projection lens forward to disengage the lens barrel from the adjustment cradle.

NOTE The lens is heavy. Support it carefully as you remove it from the adjustment cradle.



Assembly Notes

- ◆ Before installing the projection lens, check the label on the mounting flange to identify the upper side of the flange. Position the flange so that the arrow on the label points toward the top of the projector.



- ◆ When installing the projection lens, place the flange at the back of the lens barrel against the adjustment cradle. The lens is seated in the cradle properly when the screw holes on the lens and cradle align.

- ◆ The registration pin on the cradle (circled below) must align with the hole on the lens flange.



- ◆ Start the two screws on the top of the lens flange first. This makes it easier to start the screws on the bottom of the lens. Once all four screws are started, securely tighten each one.
- ◆ Replace the foam lens gasket on the projection lens by placing the gasket onto the front of the lens. Slide the gasket rearward to the flange on the zoom ring.
- ◆ If you installed the optional ultra wide angle lens, you must adjust the lens (see page 7) to assure uniform focus.

Removing and replacing the optical engine

The optical engine (LP920, IOpen 920: 530-0108-xx; LP925: 530-0115-xx; LP930: 530-0114-xx) is located adjacent to the power supply at the side of the projector opposite the I/O ports. It fastens to the bottom case and produces the projected image by directing focused light from the lamp module through three polysilicon LCDs. The optical engine and its two LCD driver ECAs are located beneath the ECA stack.

NOTE A new optical engine includes both the upper and lower cooling fans. The fans are not available separately.

1 Remove the following items:

Front bezel (see page 24)

Rear bezel (see page 43)

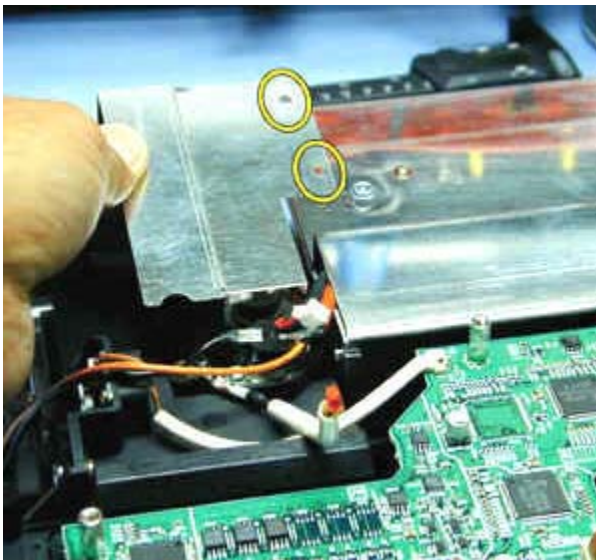
Top case (see page 47)

Exhaust fan assembly (see page 18)

Lamp module (see page 29)

ECA stack (see page 13)

2 Use a T-10 Torx driver to remove the two M3x8 screws that fasten the lamp connector shield to the top of the power supply. Then remove the shield.



- 3 Use a T-10 Torx driver to remove the two M3x8 screws that fasten the thermal switch to the lamp housing on the optical engine. Then lift the switch from its recess in the lamp housing.



- 4 Use a T-10 Torx driver to remove the two M3x8 screws that fasten the lamp connector retainer to the lamp housing on the optical engine. Then remove the retainer.

NOTE You could position the retainer backwards when you replace it, causing misalignment of the connector in the lamp housing. Observe the way the retainer fits on the top of the lamp housing as you remove it so that you can replace it in the correct position.

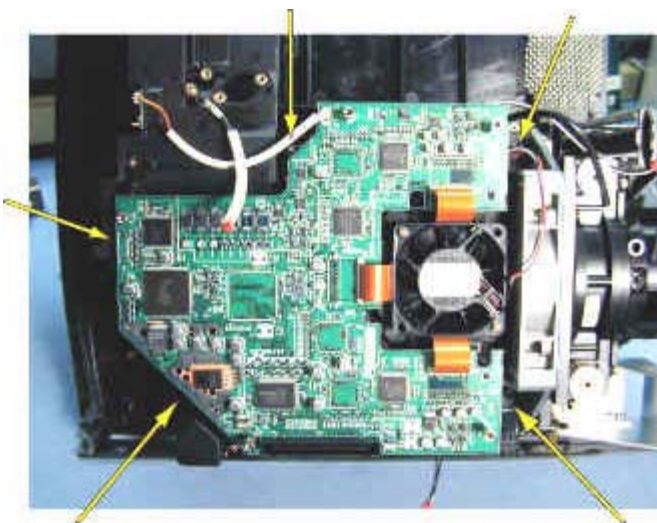




- 5 Lift the rear of the lamp connector to remove it from the recess in the lamp housing.



- 6 Use a #2 Phillips driver to remove the five M4x6 screws that fasten the optical engine to the bottom case.



- 7 Remove the optical engine from the bottom case.

Assembly Notes

- ◆ Fasten the optical engine to the bottom case with the M4x6 screws. Tighten the screws to 6 in.-lbs. (.678 Nm).
- ◆ When you replace the lamp connector in the lamp housing, make sure that the connector terminals are positioned properly to accept the lamp module. From the rear side of the projector, the lamp connector terminals should appear as shown below:



- ◆ Make sure that the connector seats properly in the recess. The rear of the connector should fit inside the recess.
- ◆ When you replace the lamp connector retainer, make sure that deeper screw recess is nearest the side of the projector with the I/O ports. The retainer must fit properly over the lamp connector so that it doesn't slip when a lamp is installed. See the illustration below. Fasten the retainer to the lamp housing with the M3x8 screws. Tighten the screws to 4 in.-lbs. (.452 Nm).
- ◆ Fasten the thermal switch to the lamp housing with the M3x8 screws. Tighten the screws to 4 in.-lbs. (.452 Nm).

Removing and replacing the power supply

The power supply (LP920, IOpen 920: 505-0077-xx; LP925, LP930: 505-0077-3x) is located adjacent to the optical engine at the side of the projector beneath the I/O ports. It fastens to the bottom case and converts the 100-240 VAC supply voltage to various low voltage DC levels required internally by the projector. The power supply also includes a cooling fan and an internal lamp ballast to strike and operate the lamp.

DANGER Do not attempt to measure the voltage from the internal lamp ballast when the lamp strikes. The extremely high voltage is capable of ruining test instruments as well as causing personal injury.

- 1 Remove the following items:
 - Front bezel (see page 24)
 - Rear bezel (see page 43)
 - Top case (see page 47)
 - Exhaust fan assembly (see page 18)
 - Lamp module (see page 29)
 - ECA stack (see page 13)
- 2 Use a T-10 Torx driver to remove the two M3x8 screws that fasten the lamp connector shield to the top of the power supply. Then remove the shield.



- 3 Use a T-10 Torx driver to remove the two M3x8 screws that fasten the thermal switch to the lamp housing on the optical engine. Then lift the switch from its recess in the lamp housing.



- 4 Use a T-10 Torx driver to remove the two M3x8 screws that fasten the **lamp connector retainer (340-0769-xx)** to the lamp housing on the optical engine. Then remove the retainer.



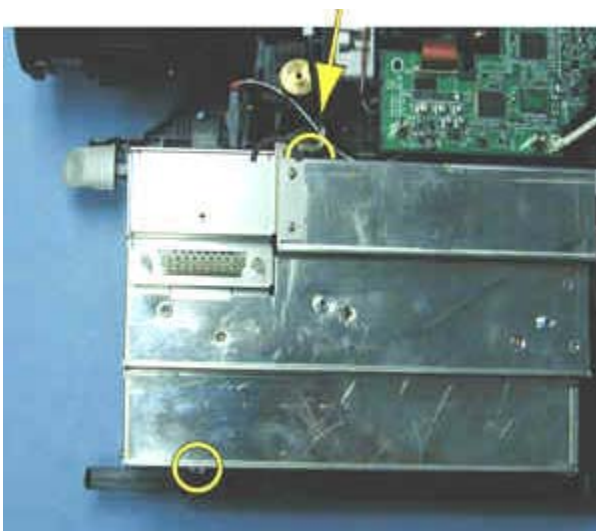
NOTE You could position the retainer backwards when you replace it, causing misalignment of the connector in the lamp housing. Observe the way the retainer fits on the top of the lamp housing as you remove it so that you can replace it in the correct position.



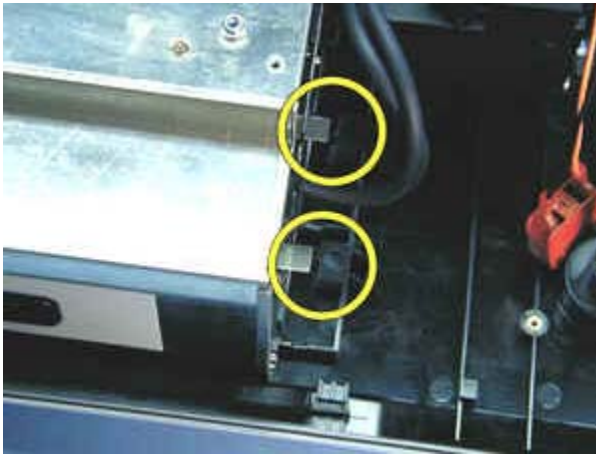
- 5 Lift the rear of the lamp connector to remove it from the recess in the lamp housing.



- 6 Use a T-10 Torx driver to remove the two M3x8 screws that fasten the power supply to the bottom case.

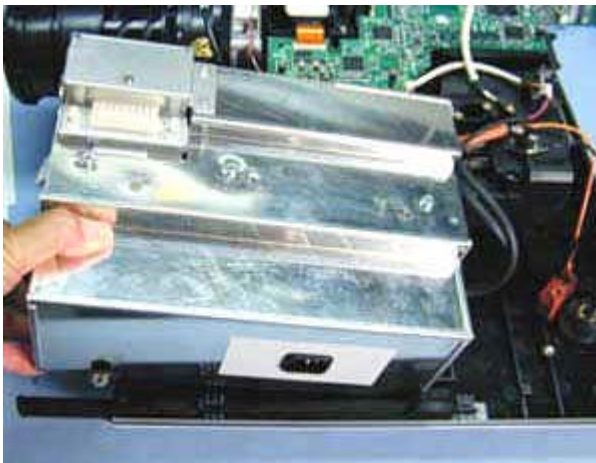


- 7 Slide the power supply toward the front of the projector to disengage the tabs on the rear bottom of power supply from the slots in the bottom case.



- 8 Lift the front of the power supply to remove it from the bottom case.

You may need to flex the side of the bottom case outward slightly to allow the tab on the mounting bracket to clear the case retainer slide.



Assembly Notes

- ◆ Make sure that the tabs on the rear bottom of power supply engage the slots in the bottom case.
- ◆ When you replace the lamp connector in the lamp housing, make sure that the connector terminals are positioned properly to accept the lamp module. From the rear side of the projector, the lamp connector terminals should appear as shown below:



- ◆ Make sure that the connector seats properly in the recess. The rear of the connector should fit inside the recess.

- ◆ When you replace the lamp connector retainer, make sure that deeper screw recess is nearest the side of the projector with the I/O ports and that the retainer fits properly over the lamp connector. Fasten the retainer to the lamp housing with the M3x8 screws. Tighten the screws to 4 in.-lbs. (.452 Nm).
- ◆ Fasten the thermal switch to the lamp housing with the M3x8 screws. Tighten the screws to 4 in.-lbs. (.452 Nm).
- ◆ Fasten the power supply to the bottom case with the M3x8 screws. Tighten the screws to 4 in.-lbs. (.452 Nm).

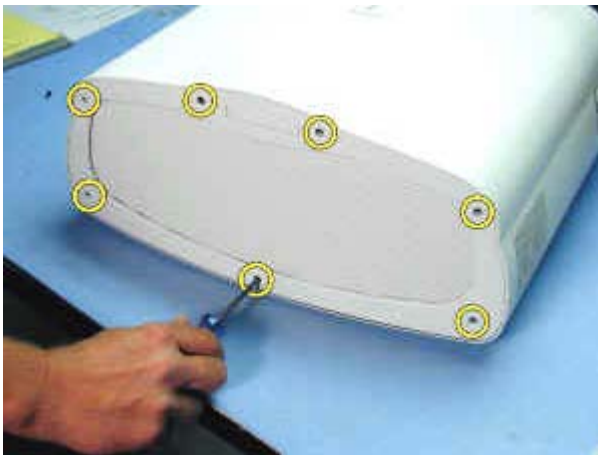
Removing and replacing the rear bezel

The rear bezel (LP920, IOpen920: 505-0680-xx; LP925, LP930: 505-0857-xx) covers the rear of the projector. It helps secure the top and bottom cases together. It fastens to the projector with seven screws.

NOTE The rear bezel contains a plunger that engages the interlock switch on the exhaust fan assembly. The projector will not operate after you remove the rear bezel unless you defeat the interlock switch.

WARNING If the projector is opened, operating it with the interlock switch defeated can expose you to dangerous AC supply voltage at the thermal switch terminals. Use caution to avoid contact with dangerous voltage levels when you operate the projector with the case opened.

- 1 Use a T-10 Torx driver to remove the black M3x8 Torx screws from the rear bezel.



- 2 Pull the bezel rearward to separate it from the projector.



Assembly Notes

- ◆ The rear bezel fits flush against the rear of the top and bottom case. The interlock switch plunger on the rear bezel engages the interlock switch when the rear bezel is in position on the projector.
- ◆ Fasten the bezel to the projector with the black M3x8 screws. Tighten the screws to 4 in.-lbs. (.452 Nm)

Removing and replacing the speakers

Left (505-0677-xx) and right (505-0678-xx) speakers provide stereo sound from the projector. The left speaker is located at the rear side of the projector behind the optical engine. The right speaker is located on the opposite side of the projector behind the power supply. The speakers face the sides of the projector. Each speaker is mounted in a metal bracket. The brackets fasten to the projector with a screw and a pair of slots that fit over tabs in the bottom case.

NOTE A part number may appear on the metal bracket that encloses the speaker. Do not order the speakers using this part number. Use the part numbers listed above.

To remove the right speaker, do the following:

- 1 Remove the following items:

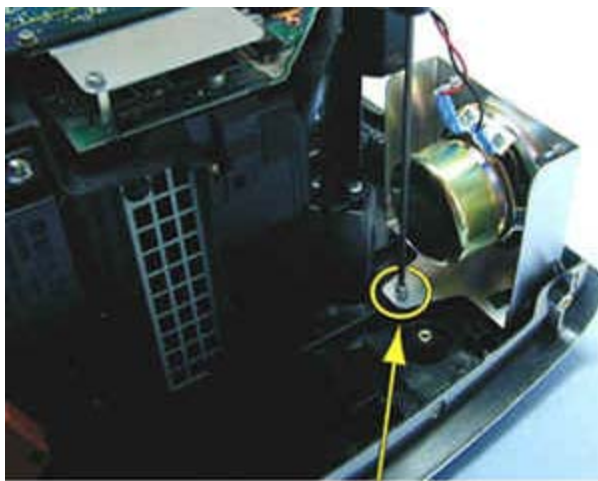
Front bezel (see page 24)

Rear bezel (see page 43)

Top case (see page 47)

Exhaust fan assembly (see page 18)

- 2 Unplug the right speaker cable from connector J501 on the controller ECA.
- 3 Use a T-10 Torx driver to remove the M3x8 Torx screw at the bottom of the speaker bracket inside the bottom case.



Right Speaker

- 4 Slide the speaker bracket backward toward the inside of the projector to disengage the bracket slots from the tabs in the bottom case.

To remove the left speaker

- 1 Remove the following items:

Front bezel (see page 24)

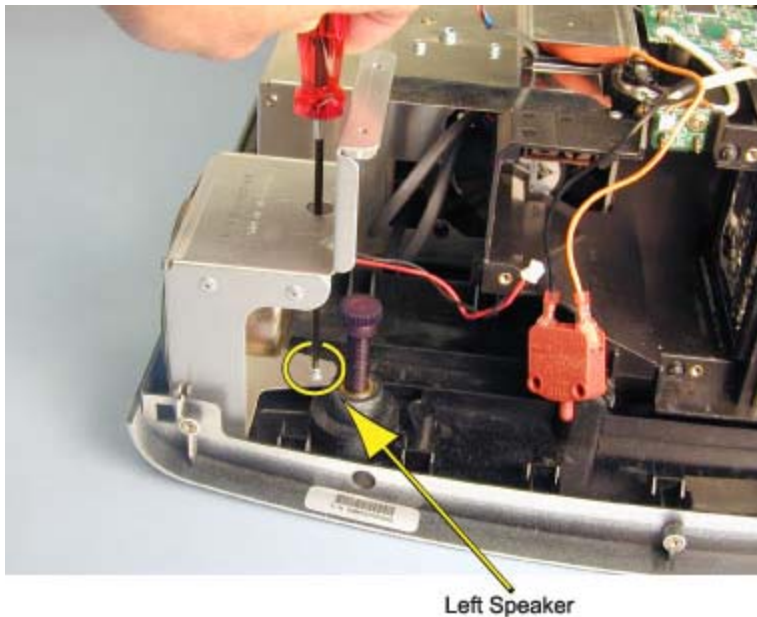
Rear bezel (see page 43)

Top case (see page 47)

Exhaust fan assembly (see page 18)

ECA stack (see page 13)

- 2 From the outside of the bottom case, fully extend the leveling foot.
- 3 Use a T-10 Torx driver to remove the M3x8 Torx screw at the bottom of the speaker bracket inside the bottom case.



- 4 Slide the speaker bracket backward toward the inside of the projector to disengage the bracket slots from the tabs in the bottom case.

Assembly Notes

- ◆ Position the speaker so that the wide portion of the bracket slots lay over the tabs in the bottom case.
- ◆ Slide the speaker bracket forward away from the inside of the projector to engage the bracket slots with the tabs in the bottom case.
- ◆ Tighten the screws to 4 in.-lbs. (.452 Nm).
- ◆ Plug the left speaker cable into connector J504 or the right speaker cable into connector J501 on the controller ECA.
- ◆ Fully retract the leveling foot.

Removing and replacing the top case

The top case (LP920, IOpen920: 505-0676-xx; LP925, LP930: 505-0853-xx) encloses the top half of the projector. When you replace the top case, you must first remove all the FRUs in the old case, then install them in the new top case. You also need to install a model label (LP920: 020-1012-xx; LP925: 020-1071-xx; LP930: 020-1069-xx) on the new top case.

- 1 Remove the following items:
 - Front bezel (see page 24)
 - Rear bezel (see page 43)
- 2 Remove the lens shift knob (LP920, IOpen 920, LP930: 340-0651-xx) from the side of the projector by grasping it and pulling it outward.



NOTE The LP925 does not include the lens shift feature. The Lens shift cover (505-0820-xx) snaps into the hole in the top case.

- 3 Detach the I/R receiver and keypad cables from their ZIF connectors on the controller ECA.



- 4 Pull the two case retainer slides forward to release the top case from the bottom case.



- 5 Gently lift the top case up and away from the bottom case.

Assembly Notes

- ◆ The exhaust fan bracket fits flush into a recess between guides in the top case. Make sure that the exhaust fan bracket aligns properly between the guides as you lower the top case onto the projector.
- ◆ Ensure that the I/R receiver and keypad cables are securely fastened to their ZIF connectors on the controller ECA. The silver contacts at the end of each cable should face downward in the ZIF connector. Check the ZIF connector latches after you insert the cables to make sure the latches are locked.
- ◆ Ensure that the case retainer slides are in their rearward position and that the top case is secured to the bottom case before replacing the front and rear bezels.
- ◆ Attach a **model label** (see Parts Lists on page 77) to the new top case. Peel the label from the label sheet and apply it to the top case.



NOTE The IOpen 920 does not require a model label.

Software

Download the software

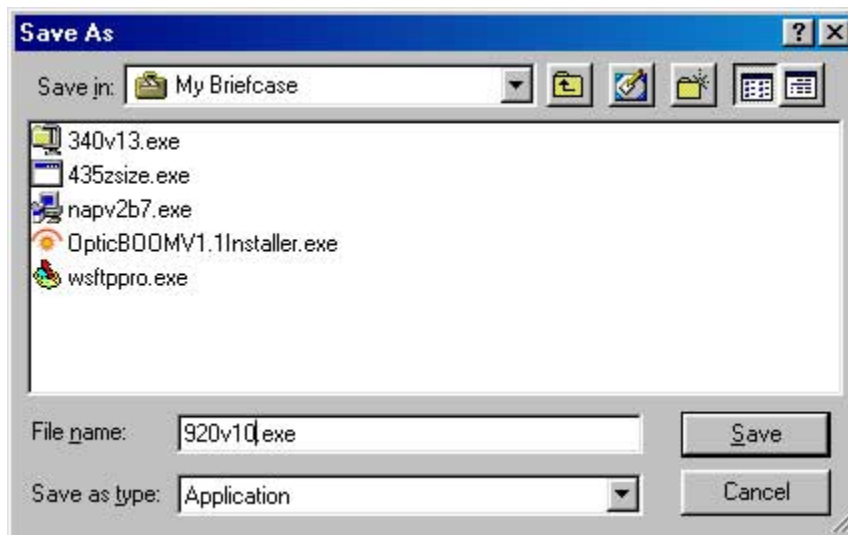
When you click the Download Now button, the File Download dialog box appears.

- 1 In the File Download box, select Save This Program To Disk option, then click OK.



- 2 In the Save As dialog box, navigate to the folder in which you want to store the file, then click OK.

NOTE Once you install the software files, you won't need the .EXE file you download. You may want to save it in a temporary folder or in the Briefcase.



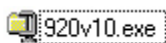
The file downloads to your computer's hard drive. Now you're ready to install the software on the computer.

Install the software on the computer

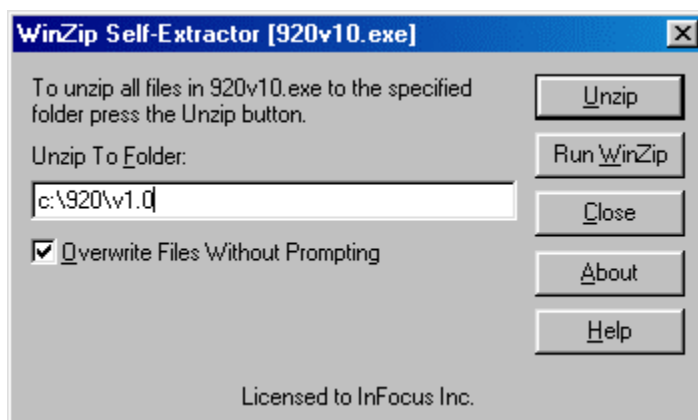
The software you download is bundled into one .EXE file. You open the .EXE file and install the upgrade software on the computer you plan to use to flash the projector. To transfer the file to another computer, place the .EXE file on a floppy disk.

NOTE These instructions work for all software upgrades from InFocus. The only difference will be the projector name and software version number.

- 1 Open Windows Explorer on your computer.
- 2 To do this, click the *Start* button, point to *Programs*, then click *Windows Explorer*.
- 3 In Windows Explorer, locate the .EXE file that contains the upgrade files, then double-click it.



- 4 The WinZip Self-Extractor dialog box appears, asking you where you want to store the upgrade files. It automatically provides a folder (c:\920\v1.0 in this example).



NOTE If you can't find the file, use the Windows Find feature to locate the file. On the Tools menu, point to Find, then click Files or Folders. In the Find dialog box, enter the name of the file (for example, *920v1.0.exe*).

- 5 To extract the files, click *Unzip*. Then click *Close*.
- 6 The upgrade files appear in the folder you specified. Now you're ready to upgrade the software in the projector.

Upgrade the software through the CableWizard 2

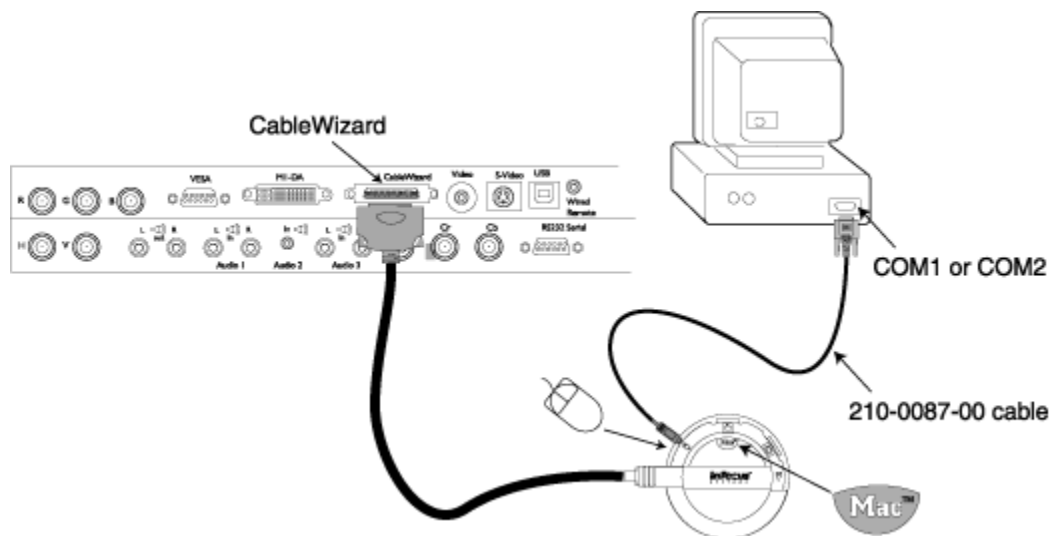
You can use this upgrade method when the projector rests on a bench or is otherwise close at hand. If the projector is mounted on the ceiling or in a rear projection booth, use the RS-232 connection to flash the projector.

Besides the CableWizard 2, you need one of the following cables:

- ◆ serial download cable PN **210-0107-00** (see directions on page 52))
- ◆ serial download cable PN **210-0087-00** (see directions below)

Connect the projector to the computer with the 210-0087-00 cable

- 1 Turn the selector on the CableWizard until **Mac** appears in the CableWizard window.
- 2 Plug the PS/2 end of the serial cable into the mouse connector on the CableWizard.
- 3 Plug the other end of the serial cable into the Communication Port 1 (COM1) on the computer.
- 4 Connect the CableWizard connector to the CableWizard port on the projector I/O panel.

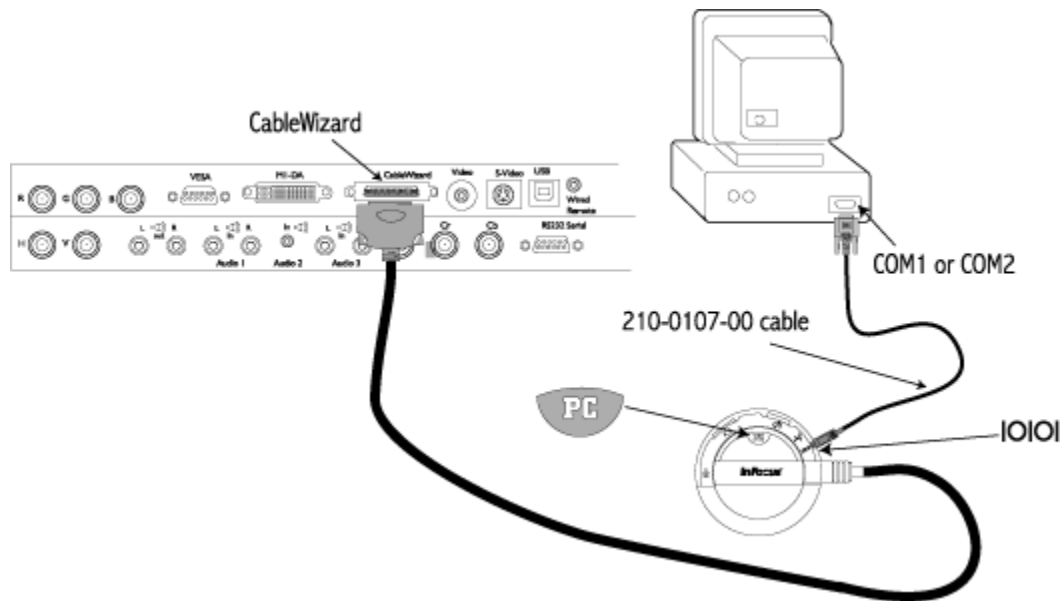


NOTE If needed, you can attach the serial cable to COM2. These instructions address use of either serial port.

- 5 Plug the power cord into the projector and into a power source.
- 6 Now you're ready to upgrade the software(see page 52).

Connect the projector to the computer with the 210-0107-00 cable

- 1 Turn the selector on the CableWizard until **PC** appears in the CableWizard window.
- 2 Plug the PS/2 end of the serial cable into the serial connector on the CableWizard.
- 3 Plug the other end of the serial cable into the Communication Port 1 (COM1) on the computer.
- 4 Connect the CableWizard connector to the CableWizard port on the projector I/O panel.



NOTE If needed, you can attach the serial cable to COM2. These instructions address use of either serial port.

- 5 Plug the power cord into the projector and into a power source.

Now you're ready to upgrade the software.

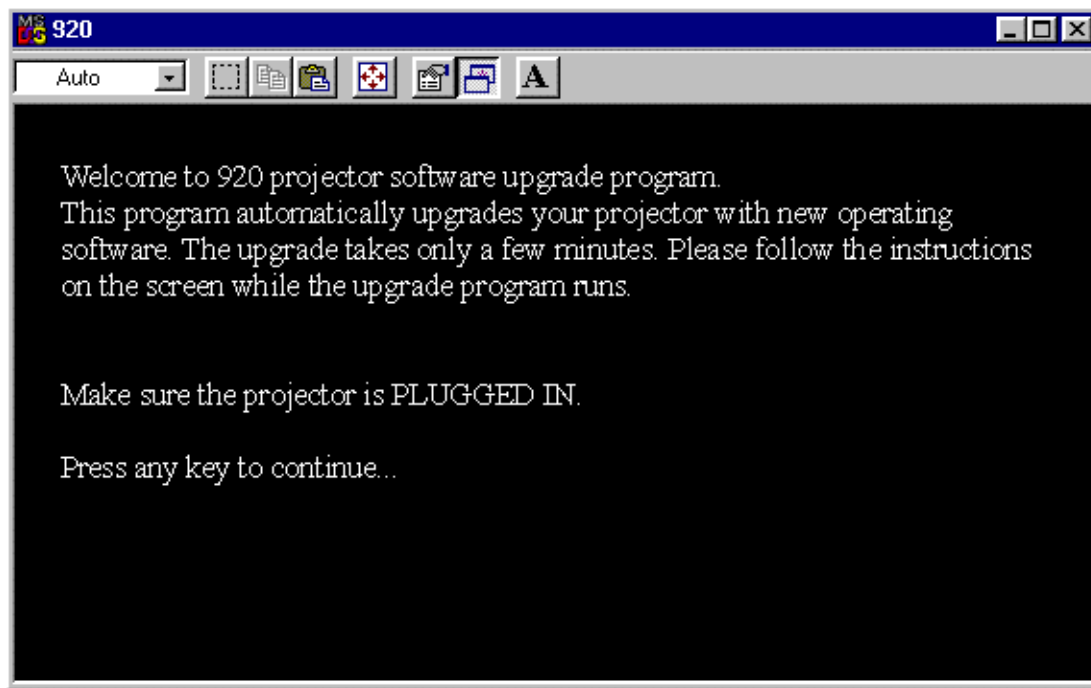
Upgrade the software

- 1 Open Windows Explorer, navigate to the batch file, then double-click the batch file.

Name	Size
920	3KB
920com2	3KB
flash	82KB
GRS30110.bt	30KB
GRS30110	9KB
GRS30110.sys	449KB
readme	7KB

NOTE If you connected the serial cable to the COM2, use the Com2 batch file (920com2 in the example above).

The DOS window opens, displaying instructions and upgrade status.

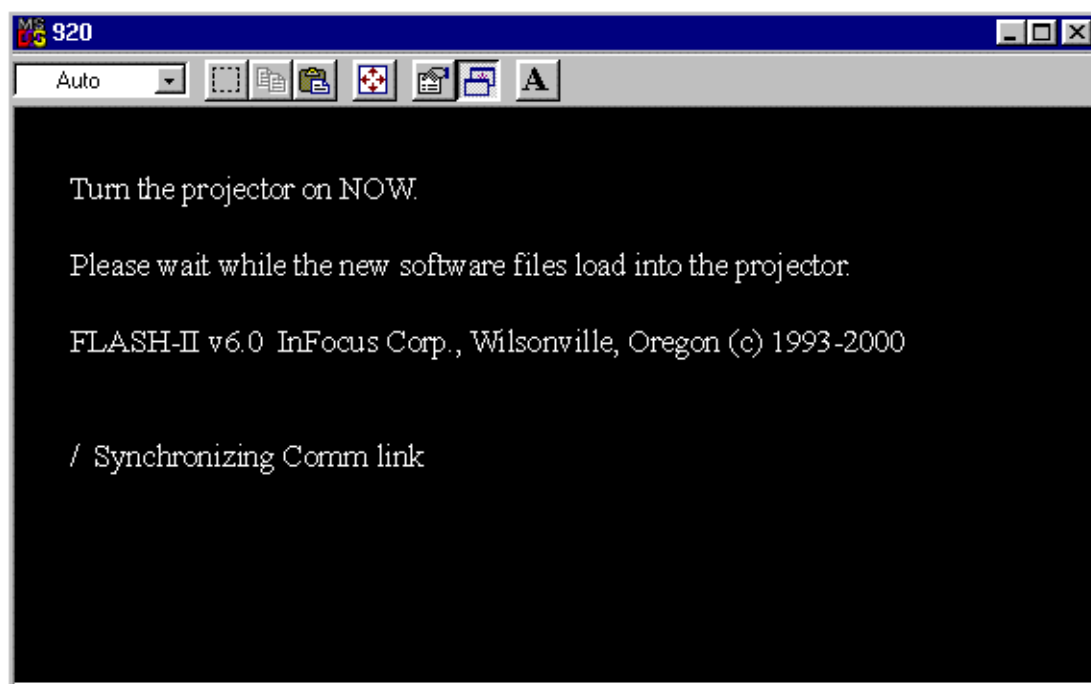


- 2 When the prompt **Press any key to continue** appears, press any key on the computer keyboard.

A second screen appears—again with the prompt, **Press any key to continue**.

- 3 Press a key, then watch for the circular timer to appear.

The circular timer resembles a slash (/) that rotates. It is located next to the text, **Synchronizing Comm link**



- 4 Press the power button on a remote control within *five seconds* of the appearance of the timer.

The upgrade files download to the projector. This takes several minutes.

If you see the message *No response*, it means the projector wasn't turned on within five seconds.

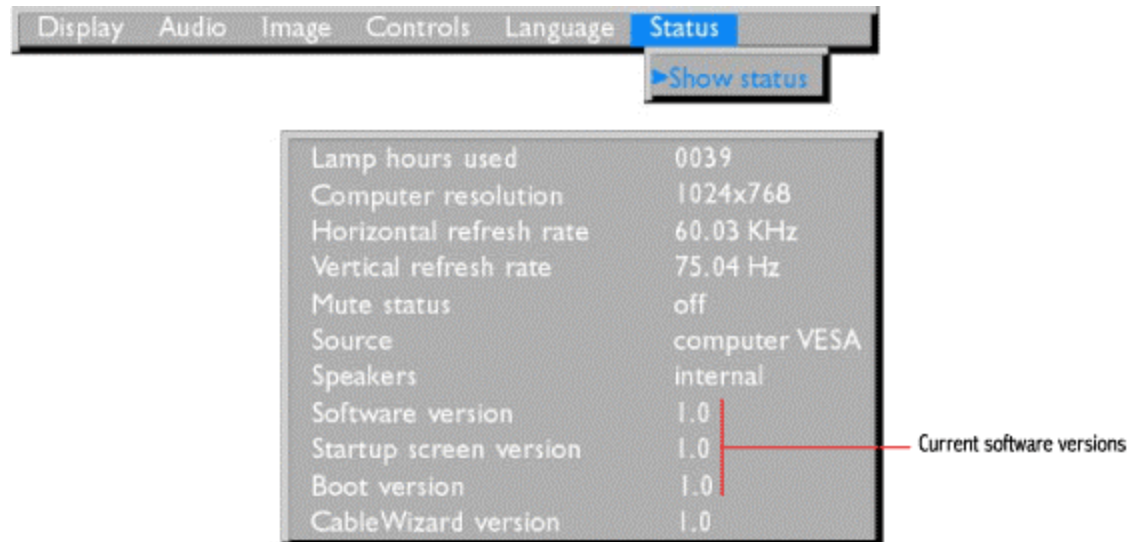
WARNING Turning the projector off while the upgrade files transfer can damage the controller ECA.

- 5 When the installation is complete, the lamp ignites and the startup screen appears on the screen.

Confirm the software upgrade

- 1 On the projector keypad, press Menu to display the menus
- 2 Use the remote control or the keypad buttons to open the Status window.

The new software version number appears in the Status window.

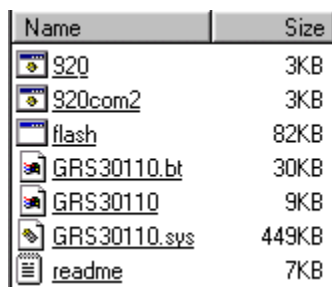


Upgrade the software remotely through the RS-232 port

When you upgrade a projector mounted on the ceiling or in a rear projection booth, you can use the **control computer** to perform the upgrade. You must load the upgrade software into the computer before proceeding (see page 69). You can also connect the RS-232 cable to a laptop for the upgrade.

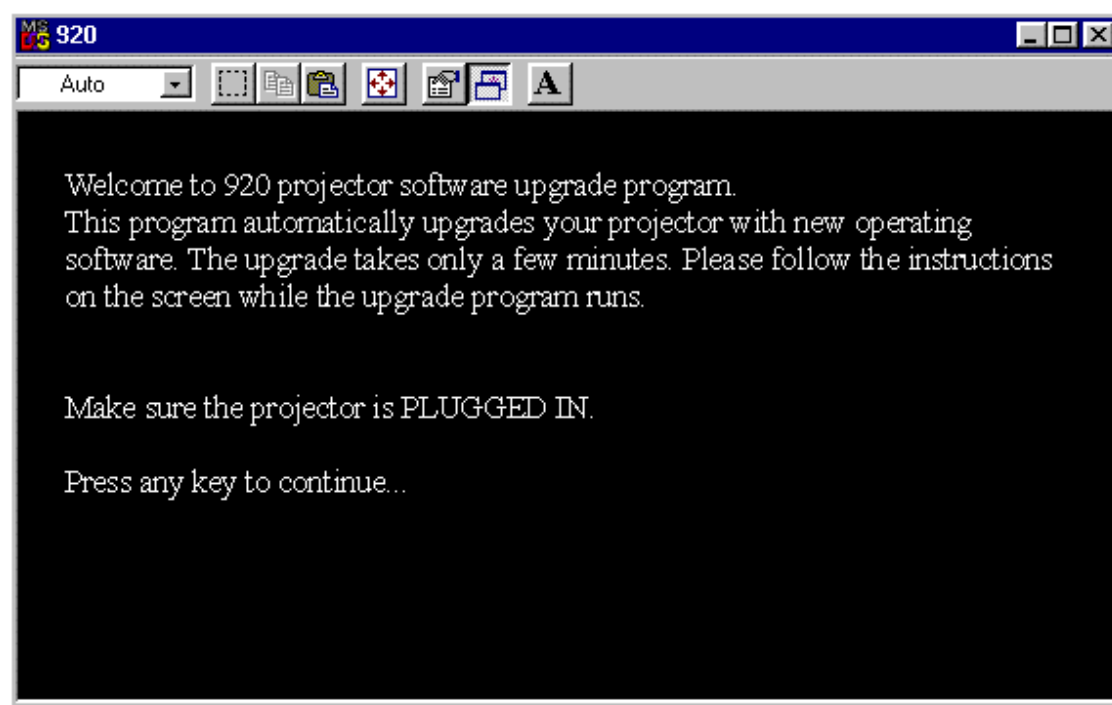
NOTE If you're working on a bench in the shop, we suggest you use a CableWizard 2 and a download cable (210-0107-00 or 210-0087-00).

- 1 Open Windows Explorer, navigate to the batch file, then double-click the batch file.



Name	Size
920	3KB
920com2	3KB
flash	82KB
GRS30110.bt	30KB
GRS30110	9KB
GRS30110.sys	449KB
readme	7KB

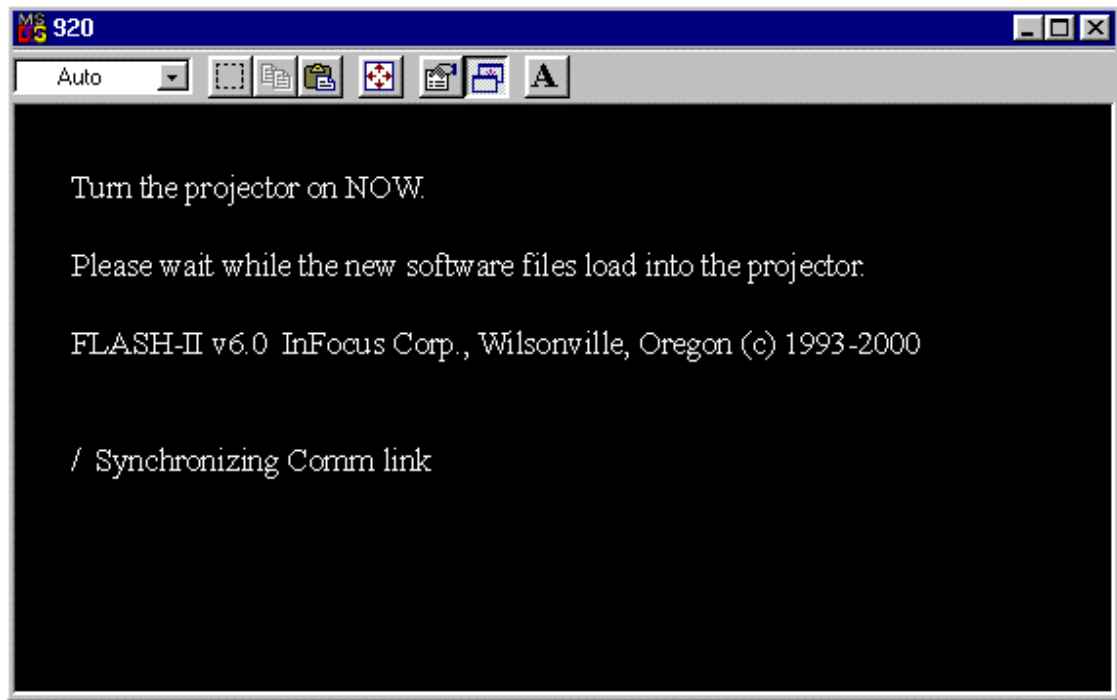
The DOS window opens, displaying instructions and upgrade status.



- 2 When the prompt **Press any key to continue** appears, press any key on the computer keyboard. A second screen appears—again with the prompt, **Press any key to continue**.

- 3 Press a key, then watch for the circular timer to appear.

The circular timer resembles a slash (/) that rotates. It is located next to the text, **Synchronizing comm link...**



- 4 Press the power button on a remote control within *five seconds* of the appearance of the timer.

The upgrade files download to the projector. This takes several minutes. If you see the message *No response*, it means the projector wasn't turned on within five seconds.

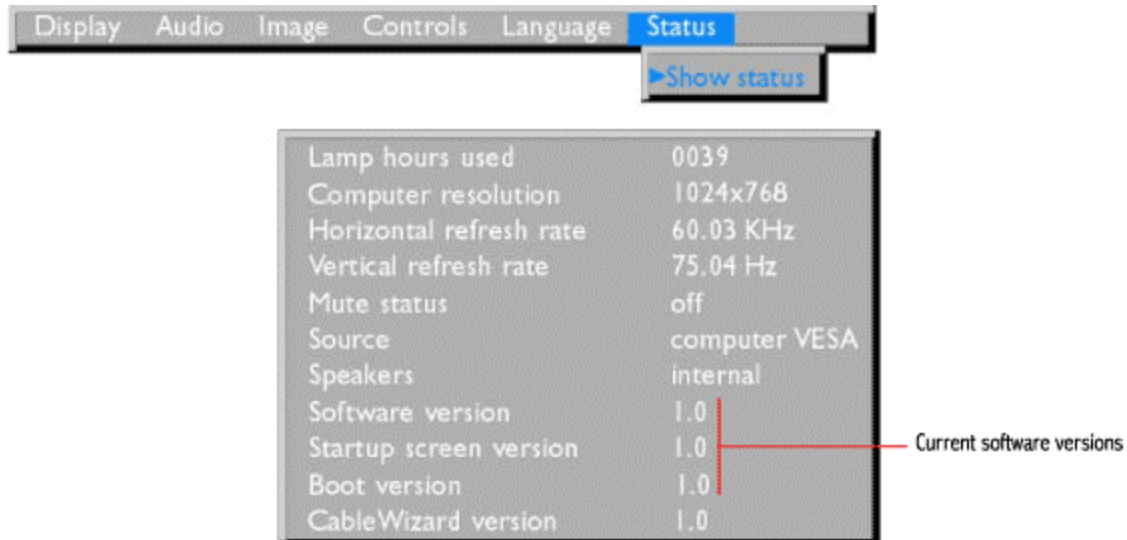
WARNING Turning the projector off while the upgrade files transfer can damage the controller ECA.

- 5 When the installation is complete, the lamp ignites and the startup screen appears on the screen.

Confirm the software upgrade

- 1 On the projector keypad, press Menu to display the menus
- 2 Use the remote control or the keypad buttons to open the Status window.

The new software version number appears in the Status window.



Functional Tests

Performing functional tests on 900 Series projectors

You perform the functional tests after you've repaired the projector to make sure all components of the projector operate properly. You can also perform the functional tests if you're having trouble determining what is wrong with the projector. For additional help in diagnosing trouble with the projector, see Troubleshooting on page 62

Required equipment

Equipment	Notes
Video player	Make sure the video player has an S-video Out port and cables. The player should also have a Composite video output port (RCA). InFocus strongly suggests you use a DVD player to test the video quality. DVD players reproduce colors better and project sharper images. The least preferable is a VCR. If you must use a VCR, make sure you use a commercially produced recording, not one recorded from a broadcast source. The VCR must include an S-video connector in addition to a composite connector.
Commercially produced video	You'll need the video in DVD, laser disc, or video cassette format. InFocus strongly suggests you use <i>Video Essentials, Optimizing Your Audio/Video System</i> (DVD International, 1997).
Audio & Video cables	Use the cables that come with the projector, including the Digital Video Interface (DVI) cable.
RGB test screens	Use these Test Patterns available on the InFocus web site to check image quality.
PC multimedia presentation	For example, you can use a PowerPoint presentation with sound, photographs, graphics and .avi files.
LaserPro remote control	Ensure that the remote has fresh AA batteries.
Projection screen	Use a flat screen, not a curved one.
PC with digital video and sound card	Make sure the card has aNm1 Digital Video Interface (DVI) output port. The stereo audio card should have either a 3.5mm stereo audio jack or RCA left and right output ports. The computer must have a CD-ROM and must have outputs for RGBHV, VESA, M1 Analog and M1 Digital.

Before beginning

Make sure the work surface where you perform the functional tests is level and clean. Place the projector on a soft surface (such as an anti-static mat) when running the tests.

Connect the following to the I/O panel on the projector:

- ◆ Video player through Composite Video and S-video ports
- ◆ Computer through RGBHV, VESA, M1 and Serial ports
- ◆ Audio in through Comp2 Audio In and TV1 Audio In ports

Perform the following tests

Test	Verification
Power Up Connect AC power, and turn the unit on.	Verify that the proper splash (logo) screen appears. Verify image quality.
Cosmetics and mechanicals Adjust the projector so that the image is square. Make sure the lens is at a 90° angle to the wall.	Verify that the elevator and leveling foot are functional. Verify that the focus and zoom rings operate properly. Verify cosmetics.
Composite video from video source On the keypad, press the Video button.	Verify that the video automatically synchronizes. Verify there is no distortion, noise or other abnormalities. Listen for audio quality. Verify there is audio emitted from each speaker, without distortion.
S-Video from video source <ul style="list-style-type: none">◆ Connect the S-VIDEO cable to the projector.◆ Disconnect Yellow composite (RCA) video connector.	Verify that the video automatically synchronizes. Verify there is no distortion, noise or other video abnormalities.
Software Version / Standby / Reset All <ul style="list-style-type: none">◆ Press the Menu button. Navigate to the Status menu. Check the software version.◆ Navigate to the Display menu. Select Reset All.◆ Press the Standby button	Verify software version. Verify the keys are not sticky. Verify unit goes in and out of standby mode.

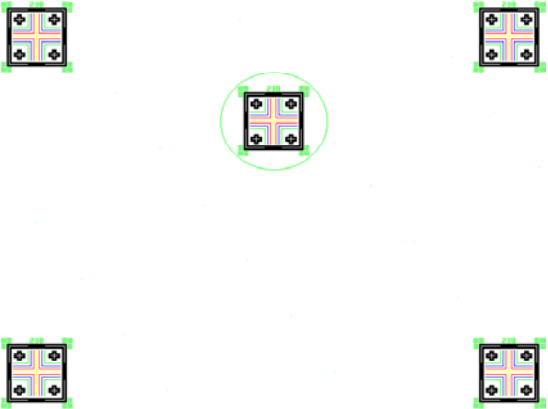

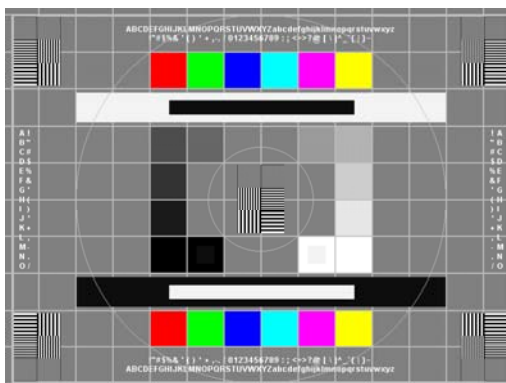
<p>The next step is to observe 3 computer images. These will confirm that the computer input works properly, and will test image quality.</p> <p>Press the Computer button on the keypad.</p>	<p>Verify that the images project synchronize properly through the following inputs:</p> <p>RGBHV VESA M1 Analog M1 Digital</p>
<p>Image #1: Focus Test Image</p> <ul style="list-style-type: none"> ◆ Turn off any local light. ◆ Turn the zoom ring to make the smallest image. ◆ Focus the image so the middle icon is clearly focused. ◆ Focus the image on the 4 green squares. ◆ After focusing on the green squares on the middle icon, turn the zoom ring to make the largest image, then repeat the focus tests. ◆ Turn the Image Shift knob clockwise and counterclockwise. 	<div data-bbox="638 436 1182 842">  </div> <p>Verify that all four corner icons have clear resolution</p> <p>Verify that the white space is visible on all 5 bar/line icon areas (between green).</p> <p>Verify that the image focuses through the full zoom range.</p> <p>Verify that the image remains in focus when the Image Shift knob is turned.</p>
<p>Image #2: Color Ramp</p> <p>Project the Color Ramp image.</p>	<div data-bbox="638 1304 1182 1713">  </div> <p>Verify there are no missing parts of the ramp.</p> <p>Verify that the bars are not flashing.</p> <p>Verify that the transitions from light to dark are smooth and gradual.</p>

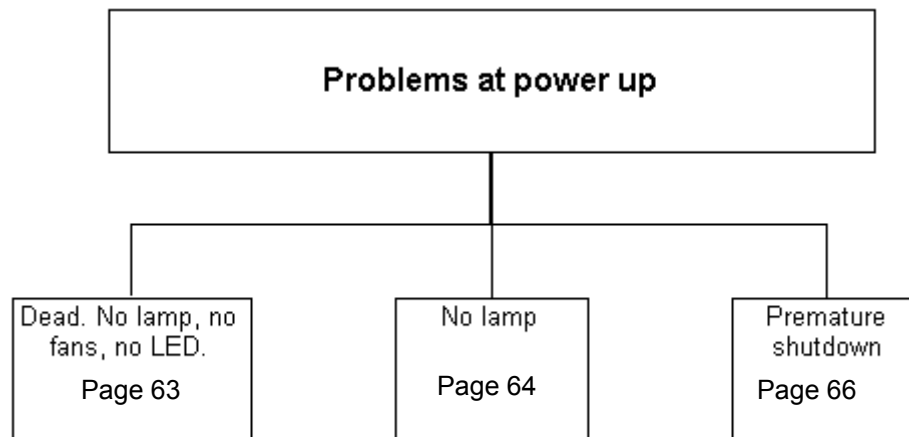
Image #4: SMPTE133

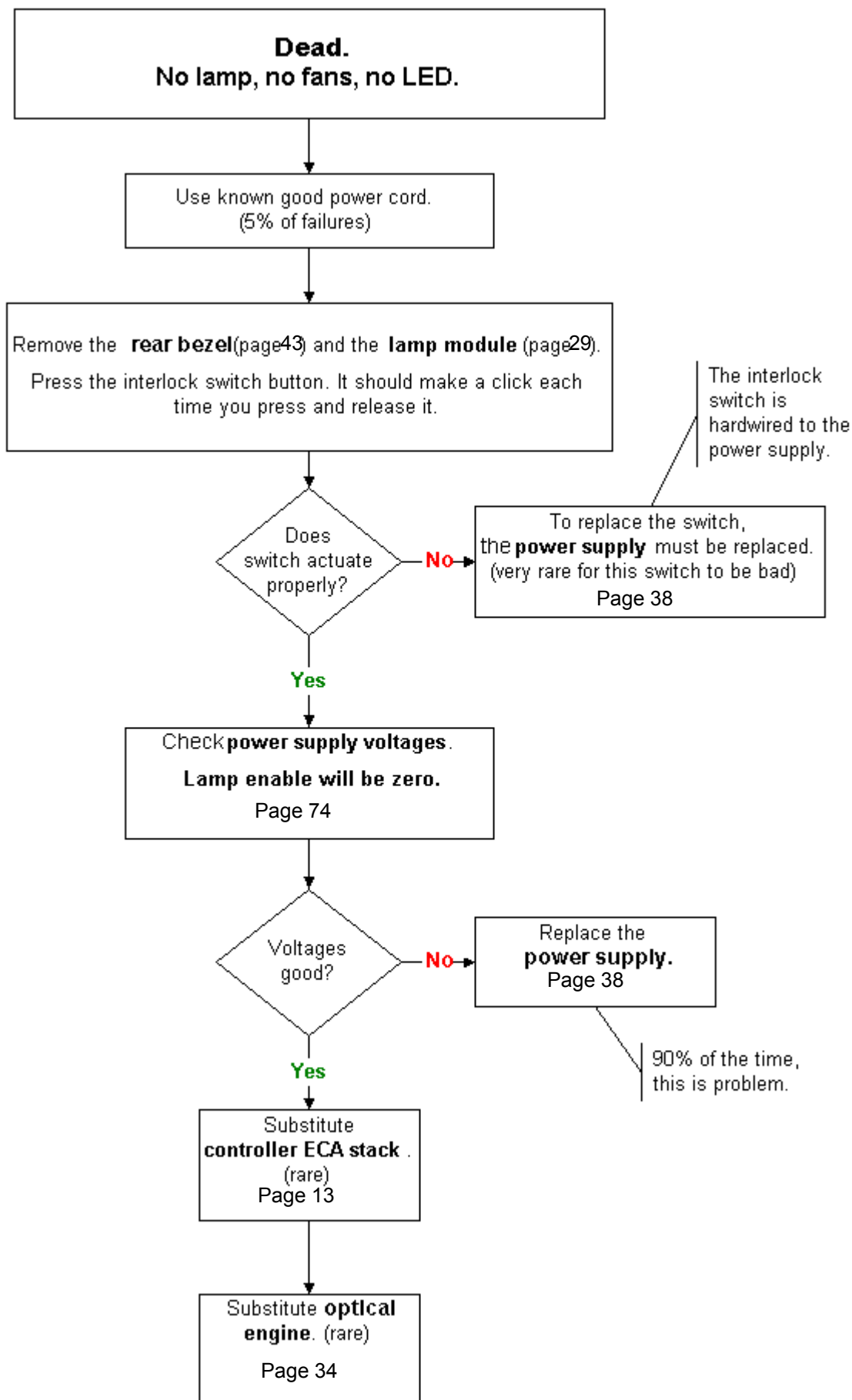
Project the SMPTE133 image.

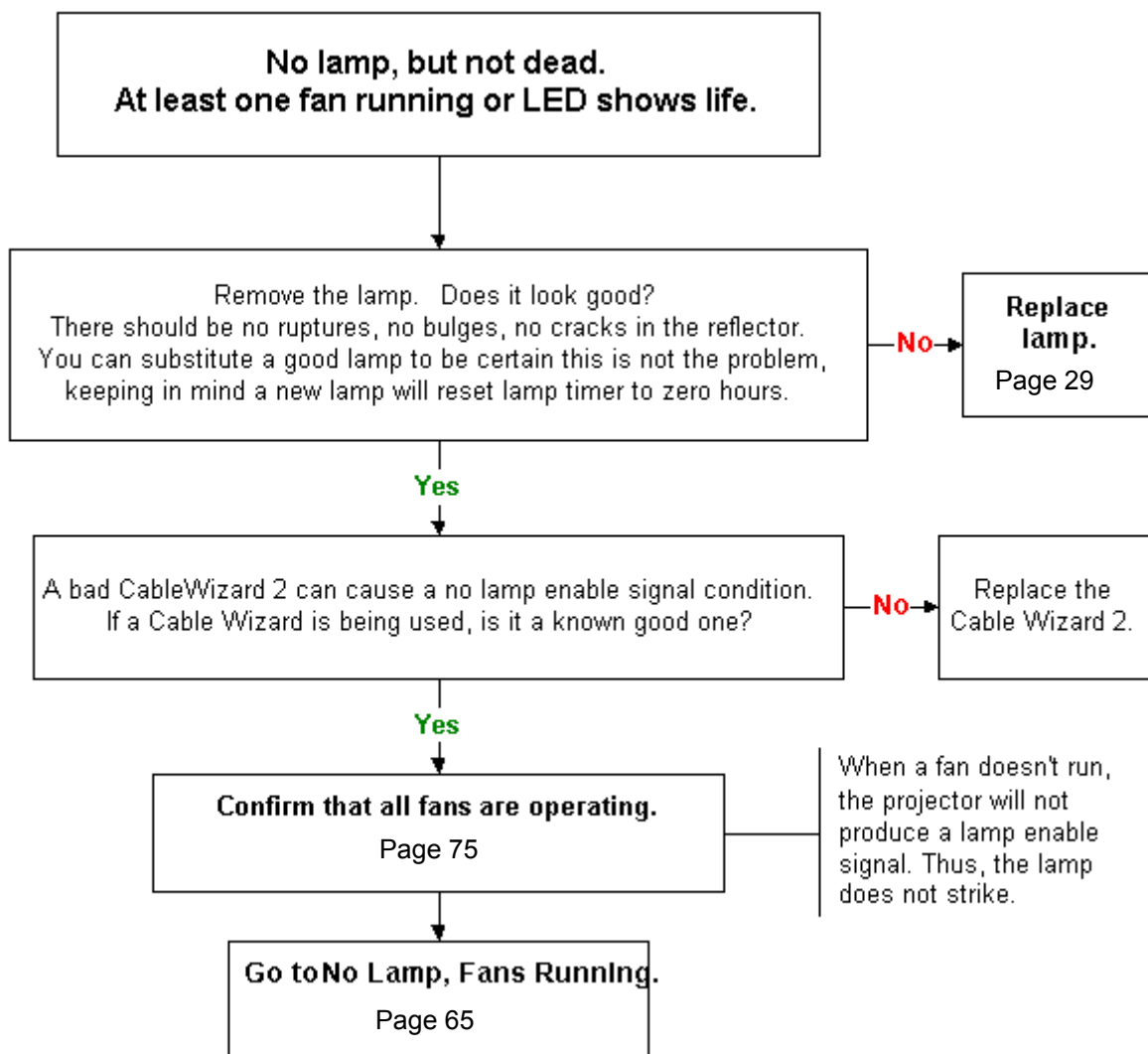


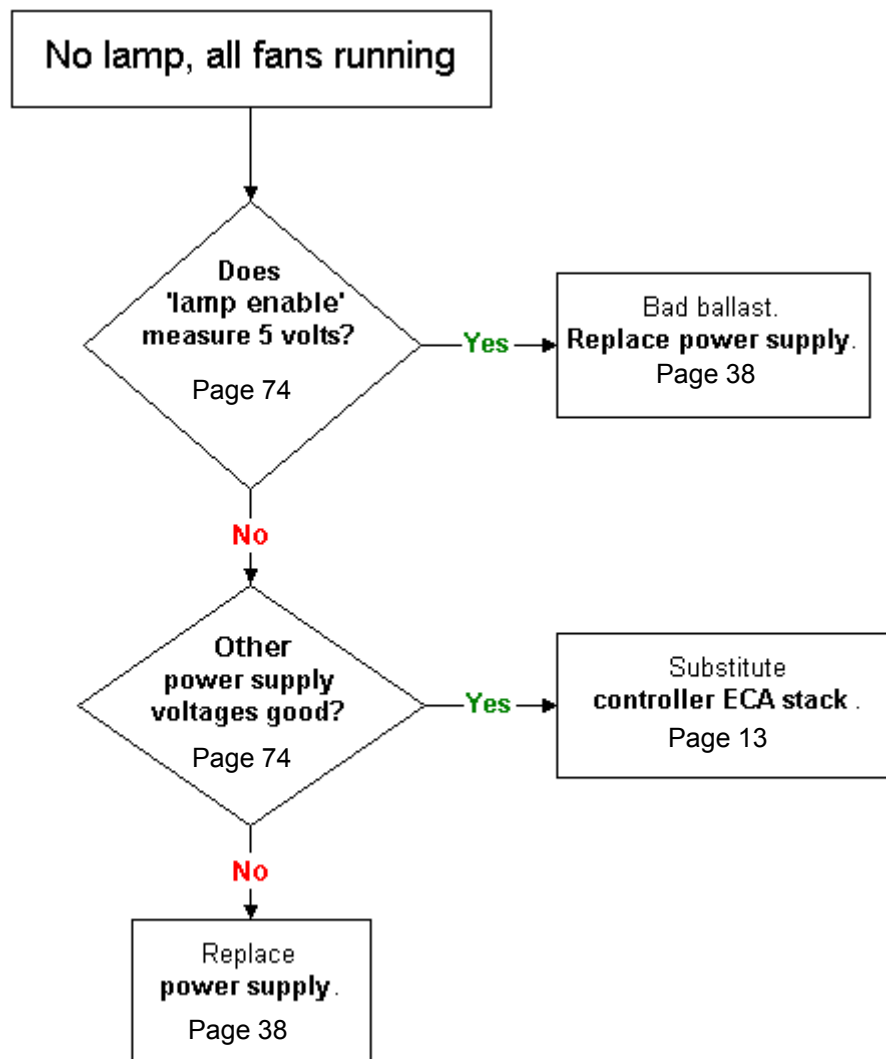
Troubleshooting

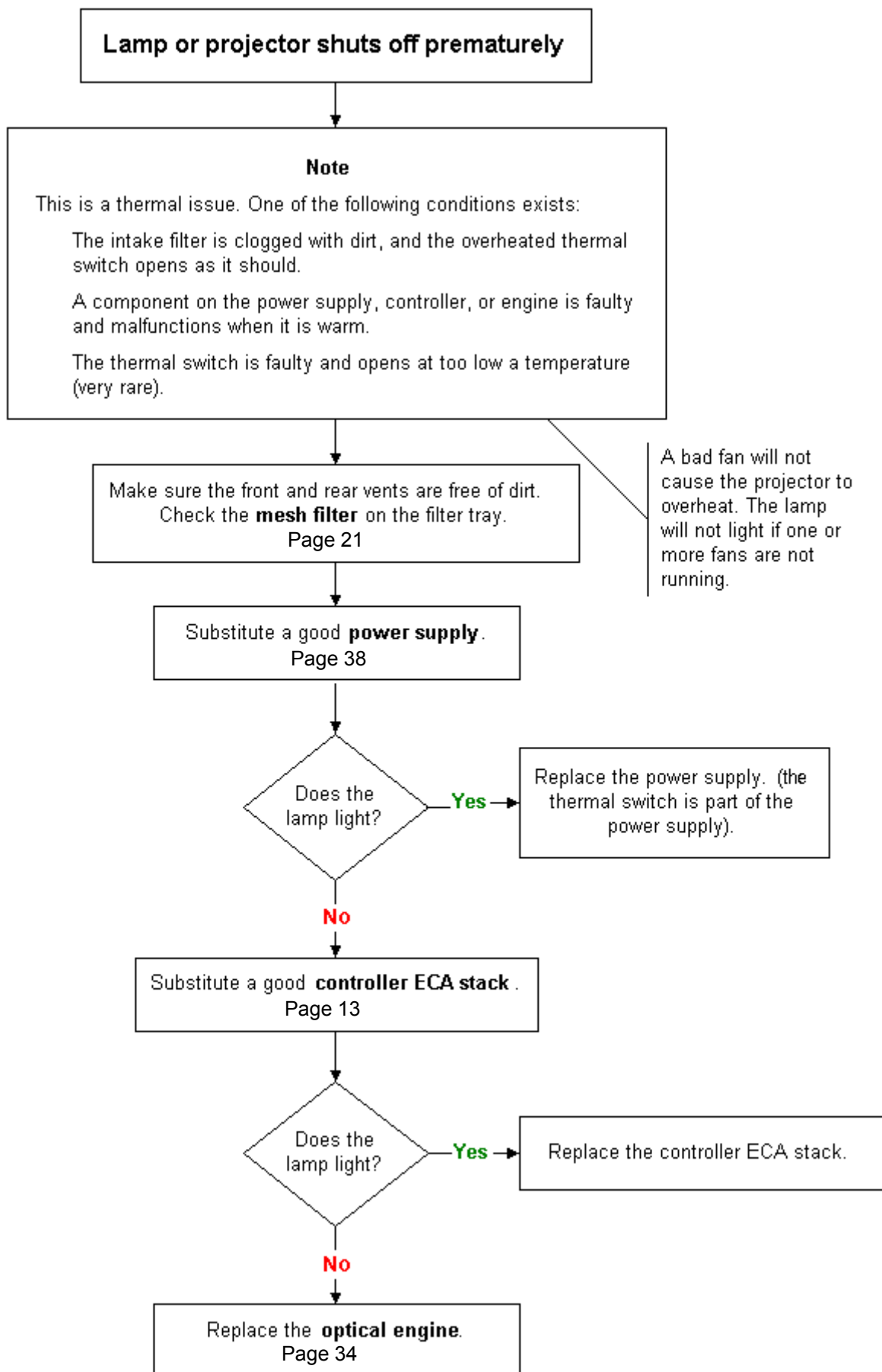
Troubleshooting Power Problems



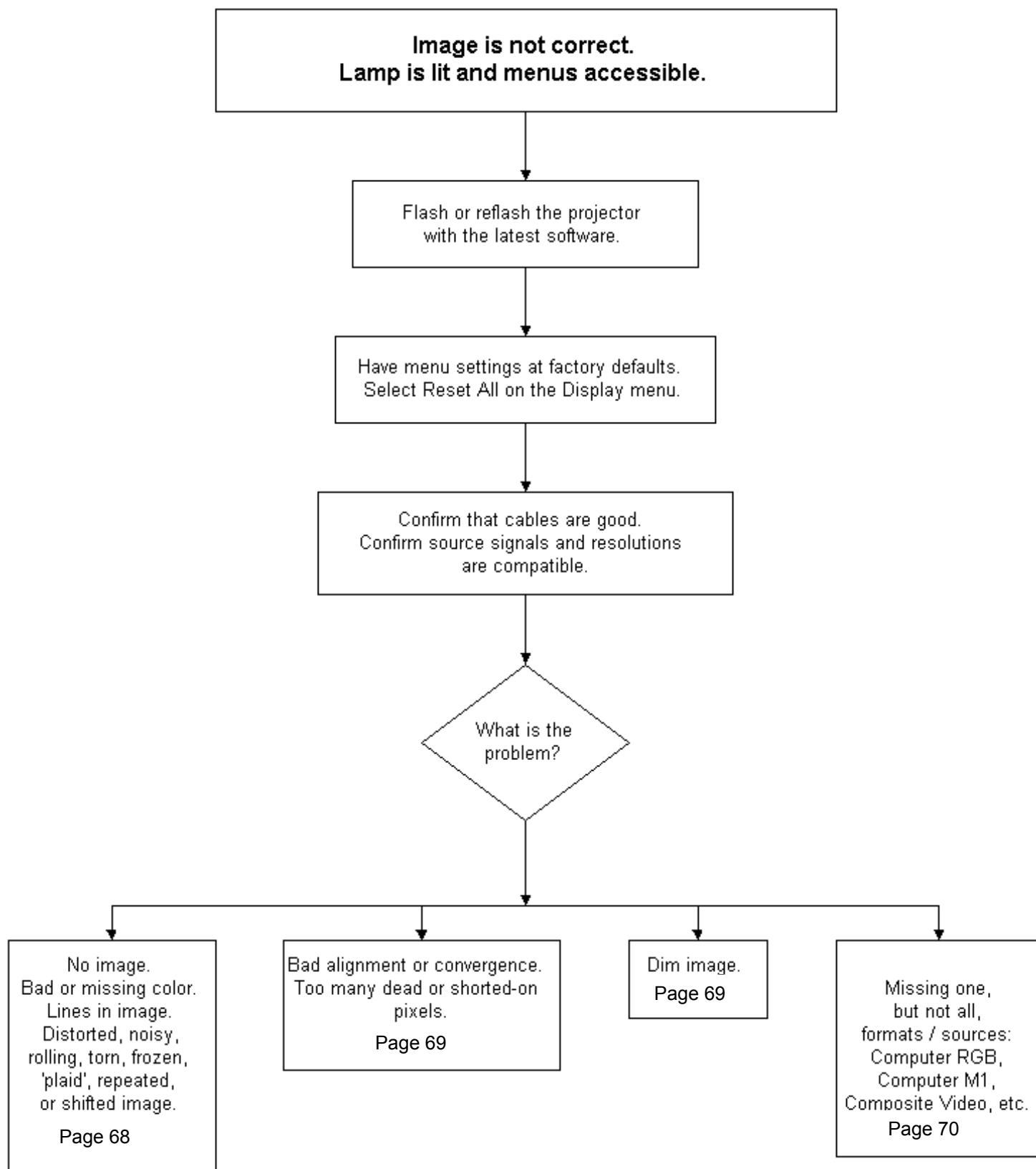


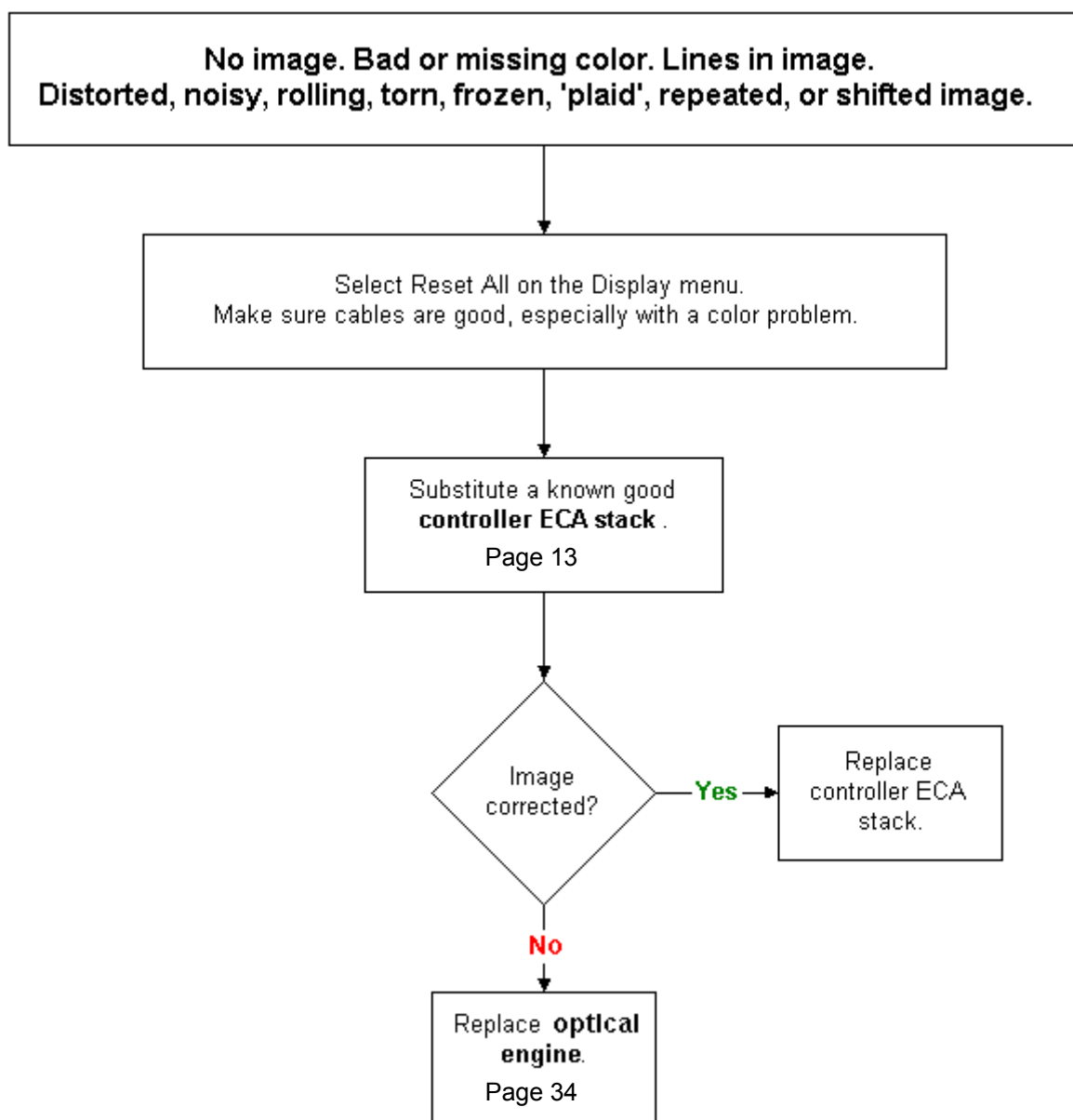


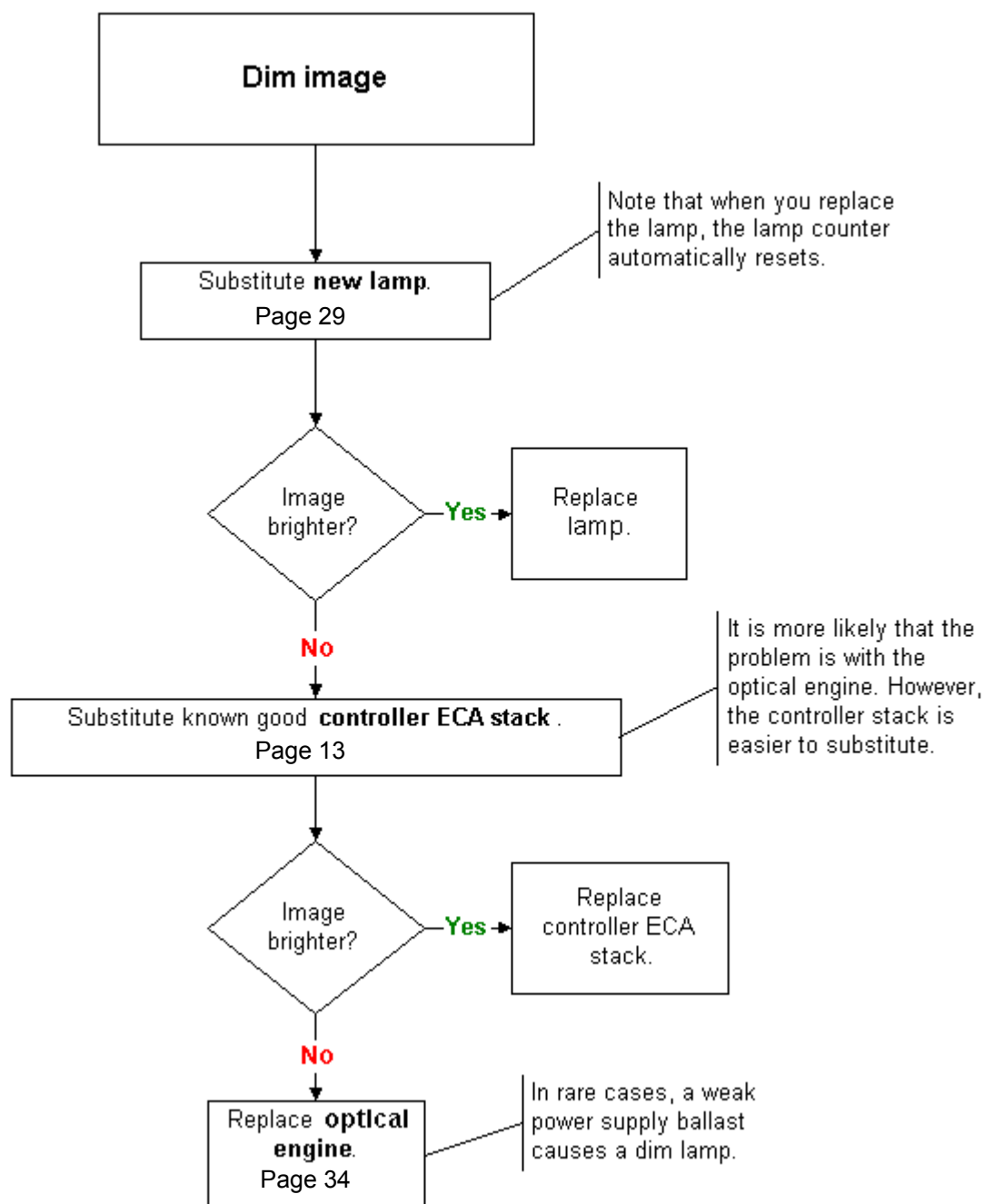
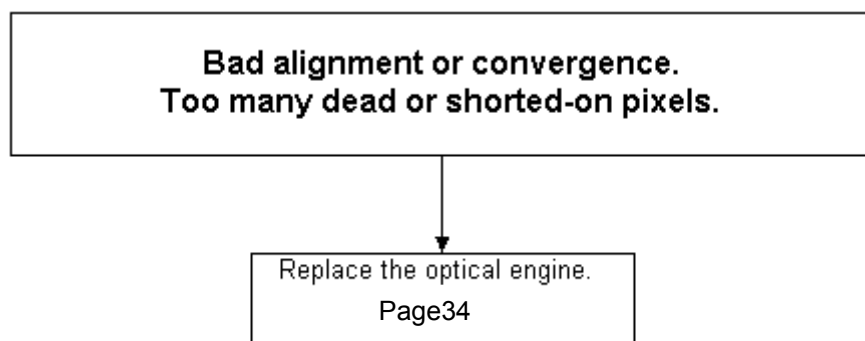


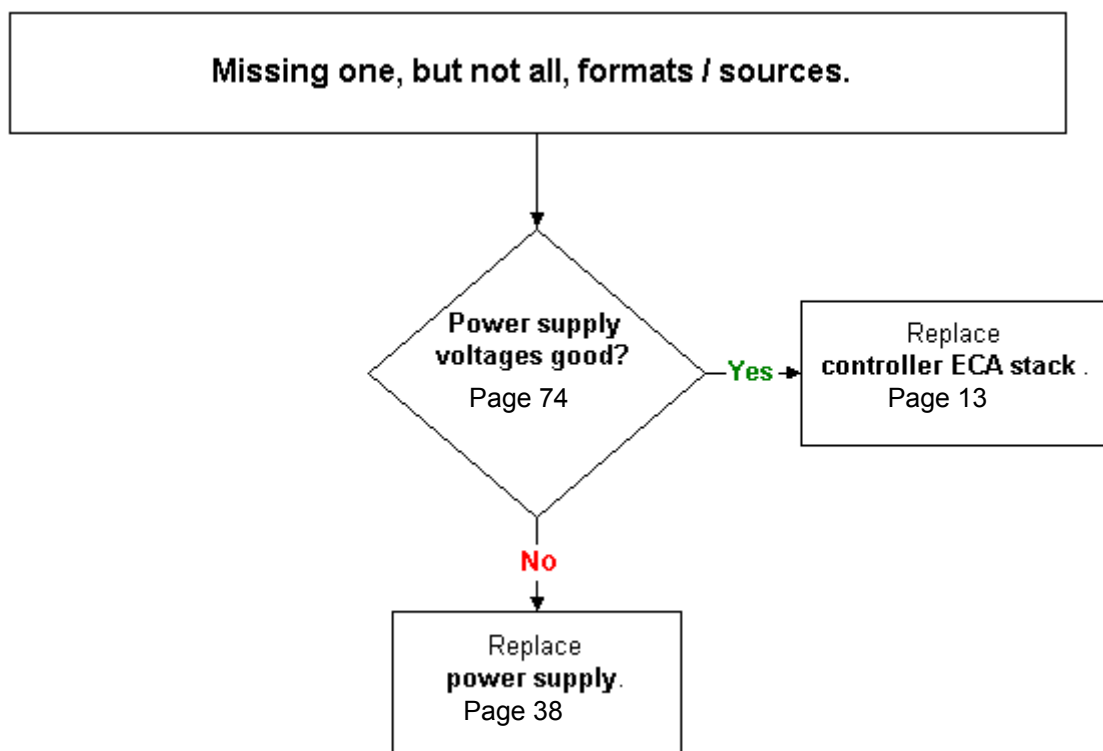


Troubleshooting Image

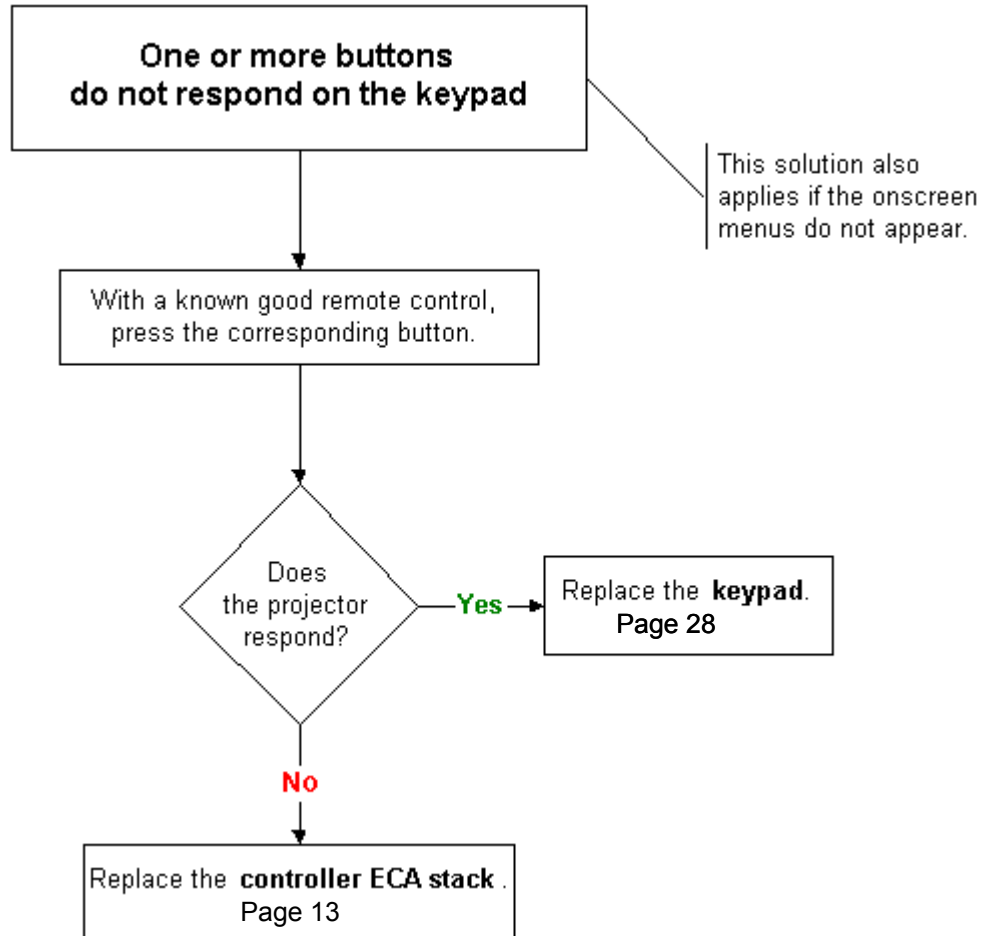




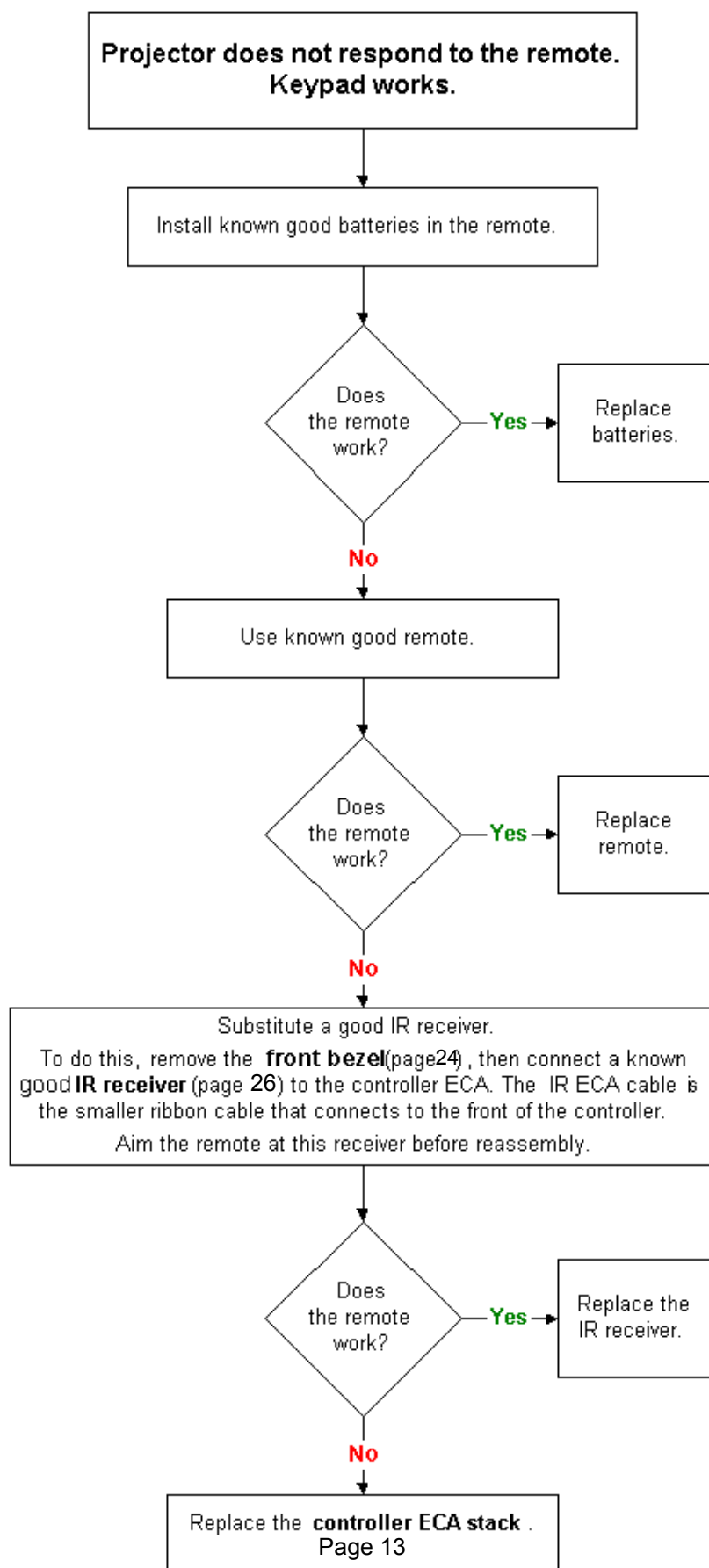




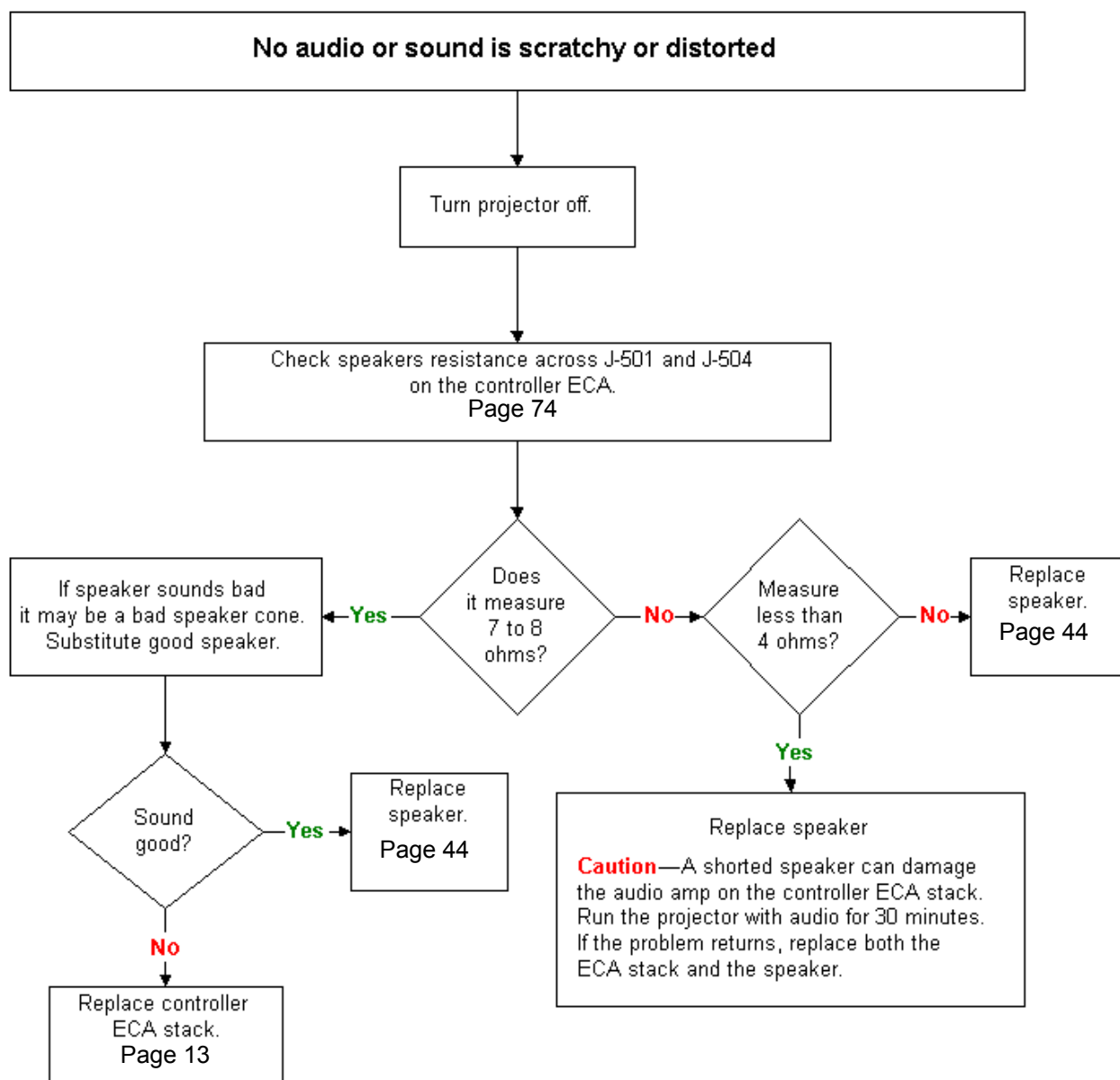
Troubleshooting Keypad



Troubleshooting Remote

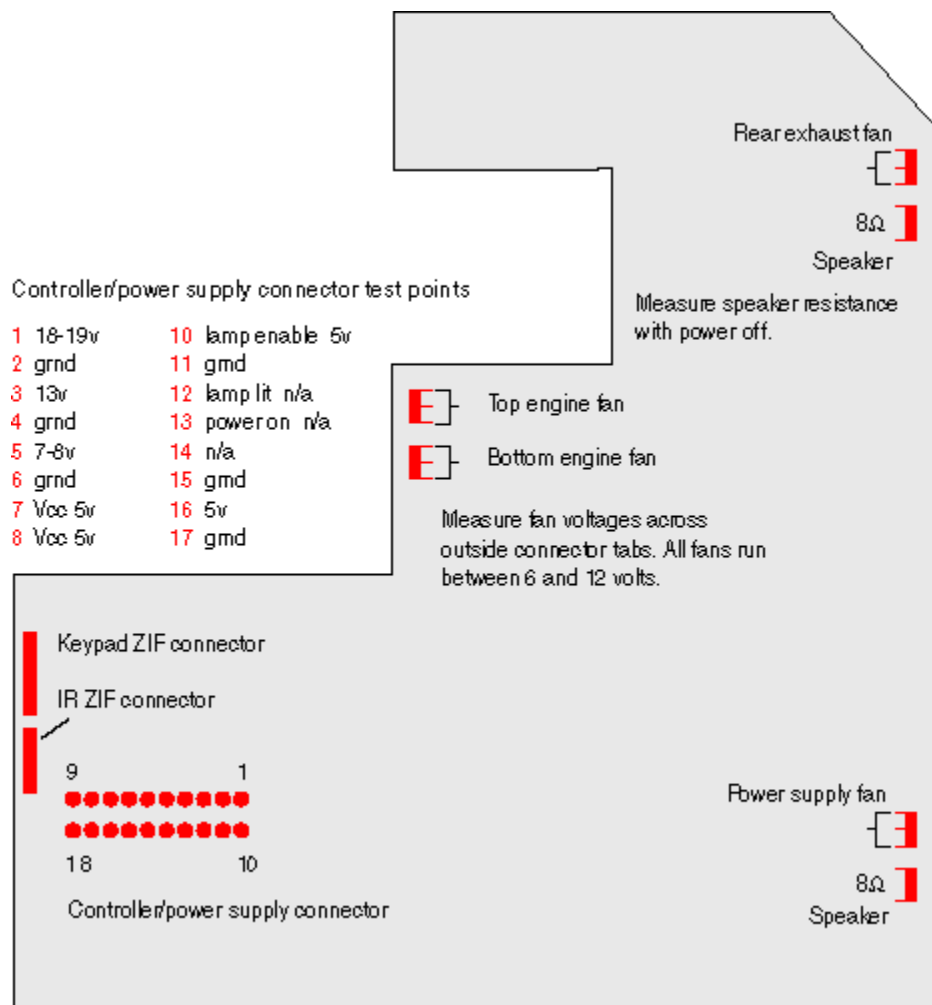


Troubleshooting Audio



Controller ECA diagram

To open the projector and power it up, see Powering up the projector with the top case removed on page 75 before proceeding.



Powering up the projector with the top case removed

To check voltages, resistances and fans inside the projector, you need to power up the projector with the top case removed. You also need to remove the top case to check speaker resistance.

- 1 Remove the following items:

Front bezel (see page 24)

Rear bezel (see page 43)

Top case (see page 47)

Keypad ECA (see page 28) If you have a spare, known good keypad ECA, you don't need to remove this part.

If you're checking speaker resistance, you can stop here. You don't need to power up the projector.

- 2 With the top case off, plug the keypad cable into its ZIF connector on the controller ECA.
- 3 Remove the interlock switch (see page) from its mount on the exhaust fan bracket.
- 4 Defeat the interlock switch by placing a piece of tape over the switch button.
- 5 To power up the projector, plug the projector into a power source, then press the Power button on the keypad.

CAUTION There is high voltage present once you power the projector up. Take extreme care when checking fans and probing for voltage and/or resistance.

Parts Lists

FRUs by alphabetic listing

Below is an alphabetically arranged list of FRUs used in the LP900 Series projectors. You can also view FRUs by numeric listing on page 80.

Part Name	Projector	Part Number	Notes
Bezel, front	LP920 IOpen 920	505-0750-xx	Does not include front bezel vent.
Bezel, front	LP925 LP930	505-0852-xx	Does not include front bezel vent.
Bezel, rear	LP920 IOpen 920	505-0680-xx	
Bezel, rear	LP925 LP930	505-0857-xx	
Cap, lens	All	340-0445-xx	Fits standard zoom lens. Will not fit optional lenses.
Case, bottom	LP920 IOpen 920	505-0675-xx	Requires new certification label. Also requires two case retainer slides (340-0660-xx). Case retainer slides from old bottom case may be reused.
Case, bottom	LP925 LP930	505-0854-xx	Requires new certification label (020-1068-xx). Also requires two case retainer slides (340-0660-xx). Case retainer slides from old bottom case may be reused.
Case, top	LP920 IOpen 920	505-0676-xx	Requires new model label (LP920 only).
Case, top	LP925 LP930	505-0853-xx	Requires new model label.
ECA stack	LP920 IOpen 920	526-0068-xx	Includes I/O ECA, controller ECA, I/O shield and I/O bezel.
ECA stack	LP925 LP930	526-0077-xx	Includes I/O ECA, controller ECA, I/O shield and I/O bezel.
Elevator assembly	All	505-0647-xx	Includes elevator shaft, actuator and spring. Does not include elevator button.

Exhaust fan assembly	LP920 IOpen 920	505-0679-00	Use the -00 version to replace the assembly in the LP920 and IOpen 920 only. Consists of exhaust fan and plastic housing.
Exhaust fan assembly	LP925 LP930	505-0679-01	Use the -01 version and above to replace the assembly in the LP925 and LP930. Consists of exhaust fan and plastic housing.
Fastener kit	All	802-0024-xx	Includes all fasteners necessary to attach each FRU in the LP900 series projectors.
Filter, optical engine	LP925 LP930	505-0806-xx	
Filter tray	All	505-0819-xx	
Foot, leveling	All	505-0648-xx	Includes leveling shaft, leveling foot and screw.
Foot, rubber	All	505-0649-xx	Used on the base of the shaft in the elevator assembly and on the bottom case at rear of projector, opposite the leveling foot.
Gasket, foam lens	All	329-0220-xx	Required for standard zoom lens. The gasket from the old lens can be reused. Will not fit optional lenses.
IR window	All	340-0657-xx	
Keypad assembly	All	526-0045-xx	Includes keypad ECA, buttons and keypad cable.
Knob, lens shift	LP920 IOpen 920 LP930	340-0651-xx	There is no lens shift feature on the LP925. The lens shift cover (505-0820-xx) fills the lens shift knob hole.
Label, certification	IOpen 920	020-1011-xx	Required for a new bottom case.
Label, certification	LP920	020-1000-xx	Required for a new bottom case.
Label, certification	LP930	020-1068-xx	Required for a new bottom case.
Label, certification	LP925	020-1070-xx	Required for a new bottom case.
Label, model	LP920	020-1012-xx	Sheet of five labels. Required for new top case. (Not required for IOpen 920)
Label, model	LP930	020-1069-xx	Sheet of five labels. Required for new top case.

Label, model	LP925	020-1071-xx	Sheet of five labels. Required for new top case.
Lamp module	IOpen 920 LP920	SP-LAMP-IO9	Note that lamps no longer carry a 9-digit part number. They now carry the 9-character Marketing Item Code (MIC).
Lamp module	LP925 LP930	SP-LAMP-LP9	Note that lamps no longer carry a 9-digit part number. They now carry the 9-character Marketing Item Code (MIC).
Lens, projection	IOpen 920 LP920	306-0049-xx	Standard zoom lens.
Lens, projection	LP925 LP930	306-0050-xx	Standard zoom lens.
Lens shift cover	LP925	505-0820-xx	Covers the hole in the side of the top case through which the lens shift knob protrudes in the LP920 and LP930. The LP925 does not include the lens shift feature.
Optical engine	IOpen 920 LP920	530-0108-xx	Includes upper and lower cooling fans and LCD driver ECAs.
Optical engine	LP925	530-0115-xx	Includes upper and lower cooling fans and LCD driver ECAs.
Optical engine	LP930	530-0114-xx	Includes upper and lower cooling fans and LCD driver ECAs.
Power supply	IOpen 920 LP920	520-0077-xx	Includes a cooling fan and an internal lamp ballast to strike and operate the lamp module.
Power supply	LP925 LP930	520-0077-3x	Includes a cooling fan and an internal lamp ballast to strike and operate the lamp module.
Retainer, lamp connector	IOpen 920 LP920	340-0769-xx	Secures lamp connector to top of lamp housing.
Retainer, lamp connector	LP925 LP930	340-0796-xx	Secures lamp connector to top of lamp housing.
Ring, focus	IOpen 920 LP920	505-0751-xx	
Ring, focus	LP925 LP930	505-0787-xx	

Ring, zoom	LOpen 920 LP920	505-0752-xx	
Ring, zoom	LP925 LP930	505-0786-xx	
Slide, case retainer	All	340-0660-xx	Two required for new bottom case.
Speaker, left	All	505-0677-xx	
Speaker, right	All	505-0678-xx	
Vent, front bezel	All	505-0688-xx	Snaps onto the front bezel.

FRUs by numeric listing

Below is an numerically arranged list of FRUs used in the LP920 Series projectors. You can also view FRUs by alphabetic listing on page 76.

Part Name	Projector	Part Number	Notes
Label, model	LP920	020-1012-xx	Sheet of five labels. One required for new top case. Not required for IOpen 920.
Label, model	LP930	020-1069-xx	Sheet of five labels. One required for new top case.
Label, model	LP925	020-1071-xx	Sheet of five labels. One required for new top case.
Label, certification	IOpen 920	020-1011-xx	Required for new bottom case.
Label, certification	LP920	020-1000-xx	Required for a new bottom case
Label, certification	LP925	020-1070-xx	Required for a new bottom case
Label, certification	LP930	020-1068-xx	Required for a new bottom case
Lamp module	LP920 IOpen 920	SP-LAMP-IO9	Note that lamps no longer carry a 9-digit part number. They now carry the 9-character Marketing Item Code (MIC).
Lamp module	LP930	SP-LAMP-LP9	Note that lamps no longer carry a 9-digit part number. They now carry the 9-character Marketing Item Code (MIC).
Lens, projection	LP920 IOpen 920	306-0049-xx	Standard zoom lens
Lens, projection	LP930	306-0050-xx	Standard zoom lens
Gasket, foam lens	All	329-0220-xx	Required for standard zoom lens. The gasket from the old lens can be reused. Will not fit optional lenses.
Cap, lens	All	340-0445-xx	Fits standard zoom lens. Will not fit optional lenses.

Knob, lens shift	LP920 IOpen 920 LP930	340-0651-xx	There is no lens shift feature on the LP925.
IR window	All	340-0657-xx	
Slide, case retainer	All	340-0660-xx	Two required for new bottom case.
Retainer, lamp connector	LP920 IOpen 920	340-0769-xx	Secures lamp connector to top of lamp housing.
Retainer, lamp connector	LP925 LP930	340-0796-xx	Secures lamp connector to top of lamp housing.
Elevator assembly	All	505-0647-xx	Includes elevator shaft, actuator and spring.
Foot, leveling	All	505-0648-xx	Includes leveling shaft, leveling foot and screw.
Foot, rubber	All	505-0649-xx	Used on the elevator assembly and on the bottom case at rear of projector, opposite the leveling foot.
Case, bottom	LP920 IOpen 920	505-0675-xx	Requires two case retainer slides, 340-0660-xx. Case retainer slides from old bottom case may be reused. Also requires new certification label.
Case, bottom	LP930	505-0854-xx	Requires two case retainer slides, 340-0660-xx. Case retainer slides from old bottom case may be reused. Also requires new certification label.
Case, top	LP920 IOpen 920	505-0676-xx	Requires new model label.
Case, top	LP925 LP930	505-0853-xx	Requires new model label.
Speaker, left	All	505-0677-xx	
Speaker, right	All	505-0678-xx	
Exhaust fan assembly	LP920 IOpen 920	505-0679-00	Use the -00 version to replace the assembly in the LP920 and IOpen 920. Consists of exhaust fan and plastic housing.

Exhaust fan assembly	LP925 LP930	505-0679-xx	The last two numbers of the part number begin with -01. However, they may change if the assembly is revved. Consists of exhaust fan and plastic housing.
Bezel, rear	LP920 IOpen 920	505-0680-xx	
Bezel, rear	LP925 LP930	505-0857-xx	
Vent, front bezel	All	505-0688-xx	Snaps onto the front bezel.
Bezel, front	LP920 IOpen 920	505-0750-xx	Does not include front bezel vent.
Bezel, front	LP925 LP930	505-0852-xx	Does not include front bezel vent.
Ring, focus	LP920 IOpen 920	505-0751-xx	
Ring, focus	LP925 LP930	505-0787-xx	
Ring, zoom	LP920 IOpen 920	505-0752-xx	
Ring, zoom	LP925 LP930	505-0786-xx	
Filter, optical engine	LP930	505-0806-xx	
Filter tray	All	505-0819-xx	
Lens shift cover	LP925	505-0820-xx	Covers the hole in the side of the top case through which the lens shift knob protrudes in the LP920 and LP930.
Power supply	LP920 IOpen 920	520-0077-xx	Includes a cooling fan and an internal lamp ballast to strike and operate the lamp module.
Power supply	LP925 LP930	520-0077-3x	Includes a cooling fan and an internal lamp ballast to strike and operate the lamp module.
Keypad assembly	All	526-0045-xx	Includes keypad ECA, buttons and keypad cable.
ECA stack	LP920 IOpen 920	526-0068-xx	Includes I/O ECA, controller ECA, I/O shield and I/O bezel.

ECA stack	LP925 LP930	526-0077-xx	Includes I/O ECA, controller ECA, I/O shield and I/O bezel.
Optical engine	LP920 IOpen 920	530-0108-xx	Includes upper and lower cooling fans and LCD driver ECAs.
Optical engine	LP930	530-0114-xx	Includes upper and lower cooling fans and LCD driver ECAs.
Optical engine	LP925	530-0115-xx	Includes upper and lower cooling fans and LCD driver ECAs.
Fastener Kit	All	802-0024-xx	Includes all fasteners necessary to attach each FRU in the LP900 series projectors.

Parts list - Fasteners

Below is a list of the fasteners included in the fastener kit (802-0024-xx) for the 900 Series projectors. You'll also find the suggested torque settings for each fastener.

Fastener	Application	Torque
M3x8 Torx	Front bezel (3), option card baffle (2), ECA stack (11), IR assembly (1), keypad (2), lamp connector shield (2), thermal switch (2), lamp connector retainer (2), power supply (2), right and left speakers, elevator assembly (4)	4 in.-lbs. (.452 Nm)
M3x8 plastite Torx	Leveling foot	4 in.-lbs. (.452 Nm)
M2x5 plastite Phillips	Focus and zoom rings	2 in.-lbs. (.226 Nm)
M3x8 black Torx	Rear bezel (9)	4 in.-lbs. (.452 Nm)
M3x5 black Phillips	Filter tray (2), elevator foot	4 in.-lbs. (.452 Nm)
M4x6 Phillips	Optical engine (5)	6 in.-lbs. (.678 Nm)
M3x14 black Phillips	Rubber foot	4 in.-lbs. (.452 Nm)

Standard Accessories

Below is a list of accessories packaged with the 900 Series. See the InFocus Accessory Store on the InFocus web site for a complete list of optional accessories.

Description	Projector	Part Number	Notes
User's Guide	LP920	010-0244-xx	
User's Guide	LP930	010-0264-xx	
CD version of User's Guide	LP930	010-0265-xx	Includes translated versions.
Lens Cap	All	340-0445-xx	
LaserPro Remote Control	All	HW-LASERPRO	Full-featured remote control with Power button and built-in laser pointer.
Lamp Module	IOpen 920 LP920	SP-LAMP-IO9	Installed in projector.
Lamp Module	LP930	SP-LAMP-LP9	Installed in projector.
AV cable	LP930	210-0053-xx	
VESA cable	LP930	210-0119-xx	HD-15 to HD-15.
Power Cords (Power cord depends upon destination country)			
North American Power Cord		210-0023-xx	
Australian Power Cord		210-0027-xx	
British Power Cord		210-0028-xx	
European Power Cord		210-0029-xx	
Danish Power Cord		210-0030-xx	
Swiss Power Cord		210-0031-xx	